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An Address
ON
SOME POINTS IN THE DECLINE OF THE BIRTH-RATE AND DEATH-RATE.

Delivered before the Preventive Medicine Section of the Congress of the Royal Sanitary Institute at York on July 30th, 1912,

BY SIR SHIRLEY F. MURPHY, F.R.C.S. ENG.,
VICE-PRESIDENT ROYAL SANITARY INSTITUTE; PRESIDENT OF THE SECTION OF SANITARY SCIENCE AND PREVENTIVE MEDICINE.

LADIES AND GENTLEMEN,—I propose to-day to submit a few observations on the decline of the death-rate and of the birth-rate, both of which have been conspicuous in our time and both of which undoubtedly require unceasing investigation if we are to arrive at any clear appreciation of the causes which have governed them. For the most part attention has been directed to the decline of the death-rate, to further which a vast administration has grown up in the country. To this I will refer in the first instance.

DEATH-RATE.

Let me take as example the decline in the death-rate of the population with which I am most familiar—that of London. The death-rate of London has declined in the last 50 years nearly 40 per cent. To be more precise, the death-rate in 1880 was 21·7 per 1000, while in 1910 it was 13·7, giving a decline of 36·9 per cent. In England and Wales during the same period the decline in the death-rate was 35 per cent. Moreover, if we examine the death-rates of different localities in England, we find that this decline has been widely shared, so that it is possible for some authorities to claim this decline as the result of their efforts, and of others to plead that local sanitary negligence cannot be alleged against them if they can point to figures of mortality exhibiting a like trend.

How far, however, are we justified in assuming that this conspicuous decline of mortality is due to any intentional effort of man to produce this result? It is a notable fact that this decline in the death-rate has in no way been limited to England. It has been largely shared by most of the European populations for which the figures are conveniently available. The annual report of the Registrar-General supplies the rates of mortality, year by year, since 1880 of Denmark, Norway, Sweden, Russia, Finland, German Empire, Prussia, Austria, Hungary, Roumania, Bulgaria, Servia, Holland, Belgium, France, Switzerland, Spain, and Italy. In these countries a marked decline in the death-rate is manifested in all but Roumania, Bulgaria, and Servia, and perhaps Russia.

Statistics published by the Ministry of Works of France[1] give for a number of European countries similar information in quinquennial periods to 1900 or to 1905, and in respect of some carry this information back to earlier periods than 1880. It is thus seen that in England, Scotland, Denmark, Sweden, Finland, and some other States the decline in the death-rate began at an earlier period than 1880.

Turning now to the towns of which information is supplied by a volume published in Amsterdam,[2] we find the death-rate of 67 continental towns in Germany, Austria, Hungary, Belgium, Denmark, France, Greece, Norway, Italy, Holland, Russia, Sweden, and Switzerland, with hardly an exception, altering in the same direction. They show a marked decline during the period subsequent to 1880, and in some the decline has not been less conspicuous than in London. It is difficult to believe that some factor has not been operative on a wider or more effectual scale than could be expected from municipal action.

Infectious Diseases.

Dealing first with infectious diseases, we note that almost everywhere the mortality from scarlet fever has greatly declined. Diphtheria, too, has shown a marked decline of mortality, which has been generally manifested, though Denmark suffered severely and exceptionally in the early "nineties." Whooping-cough mortality has declined in many countries. Small-pox, too, since the general prevalence of 1870–5 has been much less fatal. Measles mortality has in some countries somewhat declined in recent years. General and conspicuous decline has been manifest in the death-rate from typhoid fever, while the mortality from typhus, so far as statistics indicate, has in Western Europe for a number of years only shown any marked incidence in Scotland and Ireland, and in these countries has greatly declined in recent periods.

There is, as we know, considerable reason for thinking that at any rate some of the epidemic diseases occur in cycles. A striking illustration of this has been the behaviour of diphtheria in England, where, having attained epidemic proportion in the early "sixties," mortality from this disease gradually declined until the early "seventies," from which time it gradually increased until it attained a maximum in the "nineties," since when it has declined to the present time. Moreover, diphtheria and scarlet fever have been found by examination of the London statistics of notification and mortality to present, not only seasonal prevalence, but seasonal variations in age-incidence and fatality, and changes in age distribution manifest themselves over periods of years as times of epidemic prevalence are approached and passed, probably depending upon variation in the quality of infectiousness.[3] Changes of this sort are obviously due to nature, and no doubt the larger prevalences occurring in cycles are alike due to natural causes.

Whatever man may do in individual cases in the way of isolation and disinfection, nature practically governs the course of epidemic prevalence, and, as we have already seen, the trend of the epidemic diseases in recent years in numerous countries has been in the direction of decrease.

That the decline in the general death-rate of European countries has been directly affected by the decline in the death-rate from infectious diseases cannot be denied, and to show its proportion to the death-rate from all causes, I may say that in England the decline of mortality from small-pox, fever, measles, whooping cough, diphtheria, and croup, in 1871–5 to 1901–5 has amounted to 1·8 deaths in the 1000 of population, and between these periods the deaths from all causes declined 6 in the 1000. The decline in the death-rate from these infectious diseases is responsible, therefore, for nearly 30 per cent. of the decline in the death-rate from all causes.

Tuberculosis.

A notable decrease of mortality is due to the diminished death-rate from tuberculous disease, and here again I propose to see how far this decline is widespread in Europe. Here we have a cause of mortality responsible in England in 1901–5 for probably as much mortality as, or more than from, all the diseases I have mentioned, if added together. Taking deaths attributed to pulmonary tuberculosis, we find a conspicuous decline manifested in nearly all the countries previously specified, as well as in almost all the 67 European large towns. The widespread nature of this decline is not less notable than the decline in the death-rate from epidemic diseases, or from all causes.

The period at which this decline set in is not the same for all countries. Thus, limiting ourselves to the periods for which figures are given in that volume, the "Statistique Internationale" shows that, while in England[4] the death-rate markedly declined during the period from 1861–5, in Scotland the decline must be reckoned from some years later. In Switzerland the death-rate from pulmonary tuberculosis increased from 1876–80 to 1886–90, after which it declined. That of Prussia is given from 1876–80, since when it has declined. The rate for Norway is interesting, because from 1871–5 onwards the death-rate from pulmonary tuberculosis increased up to 1896–1900. In Denmark the pulmonary tuberculosis death-rate was falling from 1876–80, the earliest date given; that of Austria from 1881–5.

The statistics of the 67 large European towns giving death-rates from 1880, almost without exception manifest a marked decline of mortality from this disease, and I have before me a diagram showing the facts as to Hamburg, from which it appears the decline began not later than the

[1] Statistique Internationale du Mouvement de la Population. Paris, 1907.

[2] No. 33 of the Statistique Démographique des Grand Villes du Monde. Bureau Municipal de Statistique d'Amsterdam.

[3] Annual Reports of the Medical Officer of Health of the County of London and Transactions of the Epidemiological Society, 1899–1900 and 1906–1907.

[4] Figures for earlier years point to decline of phthisis mortality in the quinquennium 1844–49 compared with 1838–43 and continued to the present time.

"forties." There is, therefore, a large cause of mortality declining for a number of years, the decline being manifest over a wide area of Europe. There does not appear to be any sufficient reason for thinking that this decline has been due to other than natural causes. It began before any lessons taught by Koch could be applied, and however well-intentioned the efforts of man may have been, if we are satisfied that nature was responsible for the decline in countries where it set in early, we must think of the same cause being operative in countries where the decline set in late. Koch's work has, however, led us to think of tuberculosis much as we do of diseases of the epidemic class, and we are not able to exclude the possibility that the type of this disease is not constant. Apart, however, from this consideration, there is much reason for attaching weight to the view which has been urged by Professor Karl Pearson, that the part undoubtedly played by inherited susceptibility in the prevalence of the disease must be having its effect, and that the elimination of the susceptible in past years is largely responsible for the present decline. The fact that more rapid decline is taking place in urban than in rural populations lends support to this view, and the delayed decline of phthisis mortality in the Highlands to which Dr. A. Rugg Gunn has called attention is very suggestive in this connexion.[§]

We may with advantage at this point consider the effect upon the decline in the death-rate from "all causes" of the decline in the death-rate from phthisis. We have seen the death-rate from "all causes" in England fall from 22 in 1871–75 to 16 in 1901–5, or 6 in the 1000 of population. The phthisis death-rate fell in this period from 2·2 to 1·2, or 1 in the 1000 of population. Hence the decline in phthisis is responsible for one-sixth of the decline in the death-rate from "all causes."

Relative Influence of Various Factors upon the Death-rate from "All Causes."

Of diseases causing considerable mortality, only in the instance of cancer do we find notable increase of the figures in the two periods, amounting to 0·4 in the 1000 of population, and this increase is more than compensated for by the decrease in the mortality from the numerous maladies, each of which does not cause large mortality, but the decline in which in the aggregate is sufficient to account for half the decline in the total death-rate of 6 in the 1000 of population, diseases against which no preventive measures have been specially directed.

Stated generally, I think we may say that nearly two-sixths of the decline in the total death-rate has been due to decreased mortality in epidemic diseases, the trend of which is governed, in the main, by the natural behaviour of these diseases; that one-sixth of the decline in the total death-rate has been due to decreased mortality from phthisis, which, in various parts of Europe, was manifested before any of the prevailing views of prevention could have been applied, and which has probably not been materially disturbed in one or other direction since by any of the measures which have been adopted in recent years; and that the remaining three-sixths of the decline of the total death-rate has been shared among other causes of mortality, for which particular methods of prevention, as applied to populations, have hardly been discussed.

Age-incidence.

A point which has been frequently noted in the behaviour of death-rates in successive periods in the English population is the fact that the death-rates have declined most at the younger ages, and that there has been actual increase at the older ages. It has been suggested by the late Dr. Ogle that this increase may be due to survival in youth of comparatively unhealthy persons, who subsequently lived long enough to increase the mortality of the population at the older ages.

The Registrar-General, however, in his annual report for the year 1909, in discussing this subject, refers to a statement in the Census Report for 1901, which is to the effect that from 30 to 60 years ago the ages of old people were probably overstated more than in later years, both in the Census returns and in the death registers, with the effect (which is explained) of lowering the death-rates at the older ages. This would afford explanation of the higher rates at the older ages in more recent times. These higher rates at the older ages are apparently disappearing, with the result that it may be said that almost all ages are experiencing progressive decline in the rates of mortality. It would appear, therefore, that some altered condition or conditions affecting the population has been responsible for the notable decline in the mortality which we are discussing. It is, however, the special decline at the younger ages which most deserves attention. This decline at the younger ages is manifest in the death-rates from different causes, and I may refer to the following observations of the Registrar-General in his annual report for the year 1909, in which he called attention to the different periods in which special decline was manifested in the population at the several ages. He writes:—

> It is interesting to note that the mortality of children under five years of age, which during the nineteenth century had declined less than that of any other age-groups of children or young adults, and in the last decade of the century showed an actual increase in both sexes, has during the present century declined more than that of any other group. While the present is the era of greatest decline in the mortality of the youngest group of children, that of their immediate elders (5 to 15) declined most so far back as the "seventies" of last century, while for adolescents and young adults up to the age of 25 the "eighties" were the period of greatest decline. All the above statements apply to both sexes, a fact which evidences the striking uniformity of mortality in the two sexes. ..... From 30 to 55 the greatest improvement has occurred, as in the case of the youngest children, during the decade now closing. The question suggests itself whether any relationship exists between these spurts in the amount of improvement shown by the various age-groups of the two sexes, occurring as they do simultaneously for each sex, but at widely different periods in different age-groups, and changes in the environment having a selective influence upon different ages, but a uniform influence on the two sexes.

We must here observe that the population, aged 5 to 15, in the "seventies" were adolescents and young adults up to the age of 25 in the "eighties"—that is, the next decennium—and that the population at the age 35 to 55 in the decennium just closing when the Registrar-General wrote (1901–1910) consisted largely of the same persons. Hence, we may say that this population, which in successive decennia showed such improved death-rates, were either born an especially healthy group of persons or were subject to especially healthy conditions. The conditions, however, to which they were subject were the same as those to which persons at other ages were subject. The decennium 1871–80 was characterised by greater decline of the death-rate at "all ages" than in any decennium between 1841–50 and 1881–1900. It was, moreover, a period of greatly improved prosperity. May we, therefore, in seeking a selective influence upon age-periods of the condition or conditions which in 1871–80 led to marked reduction of the death-rate at "all ages," possibly find it in the age at which this particular population was in that period? We may well think it might have its maximum effect upon those at the growing age of life, and, if so, that the improved death-rates which that population experienced later in life was attributable in some degree to the benefit conferred on it at that age.

The view that improvement in environment may thus affect the population at the several ages in different degree, would afford explanation of the special decline at the younger ages, and would support the hypothesis that we are here concerned with environment as an important factor in the decline in the death-rate. Of the causes which may be operative in this direction, improved nutrition naturally suggests itself as a likely influence. The recent decline in the death-rate at ages 0–5, to which the Registrar-General directs attention, appears to afford indication which is in favour of this view, for during this period the necessity for the better feeding of infants and of young children has been unceasingly urged upon the public.

It does not appear unlikely that two causes have been operative in the direction of a low death-rate. In the case of such a disease as tuberculosis, the liability to which is inherited, susceptible persons would gradually be eliminated from the population. In the case of various diseases improved environment, especially improved nutrition, may be expected to increase resistance, and may have a maximum effect at the younger ages. Assuming both factors to be operative, the population of the present time should be in a different condition as regards susceptibility to disease than in former years.

How the Death-rates are Affected by Social Conditions.

In reports presented to the London County Council I

§ Brit. Med. Jour., Dec. 31st, 1910.

have discussed this subject. London has been divided into groups of districts for the purpose of comparison. In attempting to estimate the social condition of these populations for a number of years after the 1901 census, I took as a standard the proportions of the total population living more than two in a room in tenements of not more than five rooms. More recently, owing to the consideration that changes in the areas may have occurred since 1901, I have taken as standards the proportion of children of school age attending elementary education schools. The death-rates have been found to decrease as we proceed from the populations in the lower to those in the higher social condition. may mention that mortality from pulmonary tuberculosis is conspicuous in this respect, and that mortality from cancer behaves independently of social condition when due correction is made for differences in the age and sex constitution of the several populations. Cancer is, however, exceptional so far as I have examined the figures.

It is evidently desirable that we should know whether the decrease in the death-rates is progressing more rapidly in the higher or the lower social grades of the population. I have figures for each of our social grades in the periods 1902–05 and 1906–09, and find that when comparison is made between the three grades the amount of decline is less in the more favoured groups, and greater in the less favoured groups, as the following table shows:—

TABLE I.

Groups of boroughs in order of % of children scheduled by L.C.C. for educational purposes.	Average death-rates (per 1000 living).		Decrease %
	1902–05	1906–09	
Group I.—Under 89 %	13·98	13·25	5·19
Group II.—89–93 %	15·31	14·48	5·42
Group III.—93 % and over ...	18·40	17·08	7·17

I put these results forward, however, tentatively, for in the last decennium considerable changes have taken place in the constitution of the population of some of the metropolitan boroughs.

There has, in fact, been a tendency for the working classes especially to migrate from London, and at the present time we are not in possession of information as to the sex and age distribution of the several populations at the time the Census (1911) was taken. If later the teaching of the figures is found to be accurate, we could reconcile this behaviour of the rates with the hypothesis that the decline of the death-rate in the total population has been affected by improved environment. We may think of the most favoured groups as having earlier derived most benefit from improved conditions, and therefore experiencing between these two periods less change in this respect than the less favoured groups. In consideration of this question it would be necessary to know how much of this decline may be of a temporary nature, as it would be if attributable to variations in prevalence of infectious disease or of disease depending on climatic conditions.

Improved Environment and Natural Causes.

There is, indeed, no more complex problem than that of learning the proportion in which have been operative the various factors concerned in the reduction of the death-rate. There is much reason for thinking that improved environment has had effect in this direction, and I do not fail to attach importance to the efforts which have been made by health authorities to limit or remove opportunities for infection, and for increasing resistance to disease by improving the conditions of living, nor indeed to the effect of improved methods of treatment of disease; but I wish at the present moment to emphasise the large part which nature has played in the reduction of the death-rate.

BIRTH-RATE.

With decline of the death-rate has occurred decline in the birth-rate, and this decline, as in the case of the death-rate, has been manifest over Europe. Attention has been increasingly directed to the question whether this decline has been the result of intentional restriction. In the case of the reduction of the death-rate it has been the fashion to think of this as due to the intentional effort of man; and so in the case of the decline of the birth-rate the same thought obtains. A diagram in the *Statistique Internationale*, however, shows that increases have occurred in the past, some of them of considerable magnitude. The birth-rate of Sweden in 1801–10 was 31 per 1000, and in 1821–30 it was about 34·6; the birth-rate of Bavaria in 1851–60 was a little over 33 per 1000, in 1871–80 it was a little over 40; that of Holland in 1851–60 was a trifle over 33, in 1871–80 it was a little over 36; in Saxony the birth-rate rose from 38 in 1831–40 to nearly 43 in 1871–80; that of England from a little below 33 in 1841–50 to a little over 35 in 1871–80. If we are to credit the birth-rate with increasing in these proportions as the result of natural causes, can we doubt that nature may cause a like reduction, and is there any reason for assuming that a decrease may not also occur naturally considerably below the rate upon that upon which the increase took place?

Social Conditions and the Birth-rate.

As in the matter of death-rate, it is also desirable that we should know whether the birth-rate varies with social condition, and whether the decline in the birth-rate is greater in one or another of our social groups in the London population. I have, therefore, compared the birth-rate in our three groups in the periods 1902–05 and 1906–09, with the result that the birth-rate follows the death-rate, and as in the death-rate the least decline is found in the most favoured group, the greatest decline in the least favoured group, and a decline between the two in the intermediate group. (See Table II.) I again wish to say that I put

TABLE II.

Groups of boroughs in order of % of children scheduled by L.C.C. for educational purposes.	Average birth-rates (per 1000 living).		Decrease %
	1902–05.	1906–09.	
Group I.	24·03	22·77	5·24
Group II.	26·30	24·73	5·96
Group III.	33·18	31·18	6·02

forward these figures tentatively, for during the decennium there has been an increase in the extent of application of the system adopted in Somerset House of distributing births occurring in public institutions to the districts in which the mothers have previously resided, and it is possible that this has somewhat modified the figures. As a matter of fact, if registered births be dealt with—i.e., births which have not been distributed—I find Group II. showing somewhat more decline than Group III. There is, however, always excess of decline in Group III. over the decline in Group I. We must leave the future to determine whether this difference in the behaviour of the birth-rates in the groups is constant. Of course, for the precise statement of this question, it is desirable to take into consideration the behaviour of marriage-rates, and to know whether the age of marriage is being postponed at different rates in the three groups. I have not had the opportunity of studying this question.

Differences in Proportion of Sexes.

I may now refer to another question which may be thought to have bearing upon the reduction of the birth-rate. The annual report of the Registrar-General contains figures showing the proportion of males and females born in England in successive decennia since 1841–50. (See Table III.). These figures show that the proportion of boys

TABLE III.

Period.	Births of males to 1000 births of females.	Period.	Births of males to 1000 births of females.
1841–50	1049	1871–80	1038
1851–60	1046	1881–90	1037
1861–70	1042	1891–1900	1036

born to 1000 girls was in that decennium 1049, but progressively declined until in 1891–1900 the proportion was

1036. In the period 1901–09 it has risen to 1037, the same as in 1881–90.

Various hypotheses have been suggested by way of explanation of differences in the proportion of the two sexes which are born. One of them is that differences in registration have affected this proportion. In the *Statistique Internationale* it has been pointed out that the proportion of boys born in England is less than in Scotland, and it is suggested that inasmuch as registration of births is authorised for a longer period after birth in England than in Scotland, in England there is a longer interval during which deaths may take place; and that as the mortality of boys in early life is greater than that of girls, the births of boys dying would escape registration more largely than those of girls. If we accept this hypothesis, we should expect to find that more complete registration as the result of improved education and civilisation would have had the effect of increasing the proportion of male registered births in England in successive decennia, whereas, as we have seen, it was decreasing until the last decennium. I have compared the proportion of boys and girls born in our three groups of London districts in 1905–07, classified on the basis of social condition, the proportions of population scheduled for attendance at elementary schools being taken as a standard of social condition. The result is that in every 1000 girls born 1049 boys are born in the most favoured group, 1035 in the next group, and 1031 in the least favoured group. Comparison of the groups on the basis of the births of 1901–05 and 1906–10 gives similar results.

In an interesting paper on this subject by Mr. R. C. Punnett in the Proceedings of the Cambridge Philosophical Society he gives account of a like examination of the London population, taking as his standard of social condition that of Mr. Rowntree, of York—viz., the proportions of families keeping servants. His figures give the same indications as mine—viz., that the more prosperous populations tend to have the greater proportion of boys. He discusses this question in much detail, and shows that the earlier children of a marriage have a greater tendency to be boys than girls, and that in populations where families are limited this would have the effect of increasing the proportion of boys born. If we apply this observation to our three grades of population it might seem to afford explanation of the different proportion of boys born in them.

There is, moreover, another point Punnett discusses, which is of interest in its bearing upon this subject. Young mothers between the ages of 19 and 23 years were found to produce a larger proportion of females than older mothers, and hence, as the more improvident classes marry earlier than the more provident, this might also seem to afford some explanation of the difference between the proportion of male and female births in the three classes of the population. The age at marriage, however, in the population as a whole is somewhat later than formerly, and the effect of this should be in the direction of increase of the proportion of males born. Nevertheless, as we have seen, in England the proportion of boys was decreasing until the last decennium. Is there another factor which obscures, in the total population, the effect upon the proportion of males and females born of smaller families?

Effects of Nutrition on Proportion of Sexes.

In this connexion I may refer to observations concerning the effect of nutrition on the proportions of the sexes. Professors Geddes and Thomson, in their work on "The Evolution of Sex," state that "botanical evidence, though by no means strong, corroborates the general result that good nourishment produces a preponderance of females." There is also a good deal of evidence derived from the insect world, that insufficiency of food leads to the birth of males. I am told that agriculturists believe that good pasturage leads to the birth of females; and there is the experiment of Girou, cited by Geddes and Thomson, who fed two equal numbers of ewes, the one well, the other poorly, with the result that the former produced marked excess of females over the latter. It needs, however, to be mentioned that the well fed were served by two young rams, while the others were served by two mature rams. This, though introducing another factor in the experiment, does not, as Geddes and Thomson say, deprive it of value.

There are, therefore, two possible factors to be considered: (*a*) the reduction in size of families tending to increase the proportion of males, and (*b*) improved nutrition tending to increase the proportion of females. Both may have been operative in recent years.

Statistics of Other Countries.

We may turn to the statistics of other countries for assistance. In some we find less constancy in the behaviour of the figures than in England, but in some there is evidence that, as in England, the proportion of male births has been decreasing, while, on the other hand, in some others the indications are that the proportion of males has been increasing. It is difficult to believe that in France, where the proportion of females has increased, the effect upon sex of the declining birth-rate, which has been so widely attributed to limitation of families, should be masked by the counter effects of improved nutrition, or that in Sweden, where the proportion of males has increased, the effect of improved nutrition should be masked by the effect of limitation of families. I find it much more easy to believe that these proportions in the population as a whole are not governed by either factor.

Causes of Declining Birth-rate.

Are we, then, to attach importance to restriction of births as an explanation of the difference of the sex proportions in our three social groups? I have in this matter compared the three groups of districts in 1901–05 and 1906–10, and find that with an increasing proportion of boys born in the total population, the most favoured group has experienced, in the last period, a greater increase of boys born than in the less favoured groups. (See Table IV.) These figures, for the reasons I have already given, must be looked upon as

TABLE IV.

Groups of boroughs in order of % of children scheduled by L.C.C. for educational purposes.	Females born per 100 males.		Difference.
	1901–5.	1906–10.	
Group I.—Under 88%	96·34	95·28	1·06
Group II.—88 and under 93%...	96·67	96·25	0·42
Group III.—93% and over	97·03	96·79	0·24

tentative; but if they are to be trusted they may be thought to suggest that limitation of families is increasing at greater rate in the well-to-do than in the poor populations. This, however, is inconsistent with the apparent greater decline of the birth-rate in the poor population, assuming, of course, that other conditions are equal. I am hesitating, therefore, at the present time to accept the greater proportion of boys born to the well-to-do population as evidence of the limitation of the size of families in this population.

I am not proposing to contend that intentional restriction of births has not had its effect upon the birth-rate, but it does not appear to me that there is any more reason for ignoring the likelihood that nature has been largely concerned in the reduction of births, than for ignoring the effects of nature in reducing the death-rate. The decline in both has points of resemblance. Both have been widely manifest over Europe, both have in the main declined in the period of 1871–80 and subsequently, and indeed both appear to be behaving in like manner when we compare that behaviour in our three groups of London districts.

INFLUENCE OF HEREDITY ON BIRTH AND DEATH RATES.

Consideration of death- and birth-rates in populations of different social circumstances leads us to inquire upon what variations in the death-rate and birth-rate may depend. When we classify our population on the basis of the proportion of families keeping servants, or living in overcrowded tenements, or sending children to elementary schools, and find differential death-rates and birth-rates, we are not merely comparing the results of environment. These variations are in the main due to the unceasing sorting of the population, which is determined in large degree by nature, and as the result we have populations differing in power of resistance to disease and probably also in procreative ability.

Professor Karl Pearson has taught us that fertility is inherited in man. Are we to learn in the future that morbidity is hereditary in a much wider sense than is suspected at present? If heredity were a large factor in our

differential birth-rates and death-rates, we might find relationship between fertility and tendency to disease, and thus part explanation, at any rate, of the decline of the two rates. I think that some effort should be made to study the subject in this relation, if for no other other reason than that of the behaviour of the death-rate and birth-rate to which I have referred.[6]

THE DIAGNOSTIC AND PROGNOSTIC VALUE OF LEUCOCYTE COUNTS IN CIRRHOSIS OF THE LIVER.

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IN a paper published in 1911[1] I dealt at length with the subject of the prevalence and varieties of cirrhosis of the liver in Calcutta, and analysed the post-mortem data of 333 cases occurring in the Medical College Hospital during the previous 37 years. The main conclusions arrived at were the following:—

1. Cirrhosis of the liver is met with seven times as frequently in the Calcutta post-mortem examinations as in those of Berlin.
2. This great excess cannot be explained on the alcoholic theory of origin, for the disease is quite common in strict Mahamedans, who never take alcohol, and many of the Hindu patients had not indulged in it, while very few of them had drunk to excess.
3. One-fifth of the cases were secondary to kala-azar, being partly of the special intralobular form described by me, but also commonly of the ordinary multilobular type or both varieties combined.
4. There was no evidence that malaria ever produced a clinically evident cirrhosis, which is in accordance with Professor Osler's experience in Baltimore.
5. Hanot's biliary cirrhosis is rare in Calcutta, but a somewhat similar and very fatal form, with great enlargement of the liver, is met with in infants.
6. Dysenteric lesions were found in 48 per cent. of ordinary cirrhosis and in 42·6 per cent. of kala-azar cases. In over three-fourths of each form the lesions were old and probably antecedent to the cirrhosis; thus affording strong evidence of a causal relationship. The dysentery was usually of the amœbic type. Gastric or duodenal ulcers were also met with several times.
7. Chronic inflammatory changes in the gastro-intestinal tract due to toxic absorption or bacterial infection through ulcers in the gastro-intestinal canal are, therefore, the main cause of hobnail liver, and the frequency of chronic dysentery accounts for the great excess of cirrhosis in Calcutta.
8. Leucocytosis is common in ordinary cirrhosis of the liver, a high degree being of immediate very bad prognostic significance. On the other hand, a marked leucopenia is diagnostic of the disease being secondary to kala-azar

The conclusions of the last paragraph appeared to me to be of some practical value, as now that operative measures are frequently undertaken in the treatment of cirrhosis of the liver, it is obviously a matter of great importance, if by means of a blood count it should be possible to exclude cases which are likely to prove fatal at an early date, and to confine the surgical procedures to those in which there is a fair chance of permanent benefit resulting. I have therefore continued my observations on the blood changes in cirrhosis of the liver, and as the results confirm, and in some respects extend, the above conclusion, I propose to deal more fully with the subject in the present communication.

For convenience of reference the cases have all been tabulated and classified in the following way. In the first part of Table I. are shown those cases with an actual leucocytosis, and in the second part those in which a relative increase in the leucocytes was found. By the latter term is meant the presence of a larger proportion than one white corpuscle to 500 red, together with a decrease in the total number of red corpuscles below the normal, so that the white corpuscles would be equivalent to over 10,000 per c.mm. if the red were up to the normal standard of 5,000,000. For example, in Case 10 there were only 8250 white corpuscles per c.mm., but the red were reduced to 3,420,000, so that the proportion of white to red was 1 to 402. There is thus no actual leucocytosis, yet among the normal number of 5,000,000 red corpuscles there would be 13,250 leucocytes, a relative leucocytosis being thus present. In Cases 10 to 15 in Table I. the estimated degree of relative leucocytosis is given in brackets above the actual count. I have previously shown that in amœbic liver abscess patients presenting some degree of anæmia such a relative leucocytosis may be of great diagnostic value in the absence of an actual leucocytosis.

Similarly in the present series of cirrhosis cases it appears that a relative increase of the white corpuscles is of great immediate prognostic value. Thus, in Table I. 5 of the 9

TABLE I.—*Cirrhosis of the Liver with Actual or Relative Leucocytosis.*

Number.	Race.	Sex.	Age.	Days in hospital.	Died or relieved.	History of alcohol.	History of syphilis.	History of dysentery.	Liver large or small.	Spleen inches below ribs.	Red corpuscles.	White corpuscles (relative leucocytosis).	Ratio of white to red.	Polynuclears.	Lymphocytes.	Large mononuclears.	Eosinophiles.
1	H	M	50	17	D	—		Yes		0	4,830,000	43,250	1-112	93	5	2	
2	M	M	30	60	D						3,500,000	14,250	1-246	86	8	5	1
											3,450,000	30,000	1-115	92	4	3	1
3	H	F	38	42	R	—		Yes	—	0	4,920,000	12,750	1-386	89	9	1	1
4	H	M	20	11	R		+			0	4,430,000	12,750	1-347	80	14	3	3
5	H	M	40	27	D	—	—		—	0	3,880,000	13,000	1-298	67	22	6	5
6	H	M	44	17	D	+		Yes	—	0	3,940,000	14,000	1-281	80	14	6	
7	H	F	30	42	R	+			—	0	5,860,000	13,500	1-434	64	28	5	4
8	H	M	32	67	R	+	+		—	0	4,720,000	11,000	1-429	83	13	3	7
9	H	F	1½	8	D	—				0	2,560,000	42,250	1-60	89	8	3	
Cases showing only a Relative Leucocytosis.																	
10	H	F	30	108	D					1	3,420,000	(13,250) 8,250	1-402	75	20	3	2
11	H	M	30	35	R		+	Yes	—	0	4,030,000	(11,250) 9,000	1-448	74	18	4	4
12	H	M	35	19	D	+	—		—	0	2,620,000	(14,000) 7,250	1-361	68	22	2	8
13	H	M	30	29	R	+ +	—	Yes	—	0	3,250,000	(12,250) 8,000	1-406	73	21	6	
14	H	F	55	26	D	—		Yes	—	0	3,150,000	(14,000) 8,750	1-360	72	23	4	1
15	H	M	40	5	D	—	—	Yes	—	1	2,160,000	(15,750) 6,750	1-320	71	23	6	

In second column ("Race") H = Hindu; M = Mahamedan.

TABLE II.—*Cirrhosis of the Liver with Normal or Diminished Leucocytes.*

Number.	Race.	Sex.	Age.	Days in hospital.	Died or relieved.	History of alcohol.	History of syphilis.	History of dysentery.	Liver large or small.	Spleen inches below ribs.	Red corpuscles.	White corpuscles.	Ratio of white to red.	Polynuclears.	Lymphocytes.	Large mononuclears.	Eosinophiles.
16	H	M	40	94	R	+ +	—	Yes	—	0	3,570,000	6,000	1-595	28	52	12	8
17	H	M	26	33	R	+	+	Yes	—	0	3,160,000	6,250	1-505				
18	H	F	32	18	R						3,670,000	4,250	1-853	87	9	4	
19	H	M	35	63	R	+				0	3,660,000	4,250	1-861	43	32	4	21
20	H	M	26	30	R	+		Yes	—	0	4,510,000	5,000	1-902	76	13	10	1
21	H	M	35	37	R	+		Yes	—	4	4,290,000	7,250	1-590	77	13	9	1
22	H	M	25	35	R	—	+	Yes	—	0	3,520,000	5,000	1-704	76	18	5	1
23	H	F	18	71	R	—	—	Yes	—	0	3,990,000	4,750	1-840	25	41	2	32
24	H	M	30	4	D	—	+	Yes	—	0	2,460,000	3,750	1-656	73	22	5	
Kala-azar Cases.																	
25	H	F	40	37	R	—	—	Yes	—	2	3,160,000	2,375	1-1330	62	30	8	
26	H	M	25	36	R	—			—	6	2,100,000	1,000	1-2100	73			
27	H	M	22	16	R	+		Yes	—	5	3,480,000	2,375	1-1463	73	20	5	2
28	M	M	25	60	D	+	+		—	6	2,030,000	1,250	1-1624	56	26	18	
29	H	M	36	30	D	—	—	Yes	—	8	2,480,000	3,000	1-827	56	26	12	6
30	H	M	23	58	R	—	—		—	4	2,780,000	5,250	1-530	60	30	8	2
31	H	M	40	42	R	—	—		—	2	2,900,000	3,750	1-656	73	22	5	
32	H	M	35	18	R	+		Yes	—	8	3,590,000	4,250	1-845	72	24	2	2

[6] Dr. Lloyd Jones's observations on the fertility of persons having chlorotic conditions of the blood are of interest in this connexion.

[1] Indian Medical Gazette, February, 1911.

patients showing an actual leucocytosis died within a short period of time, while in the 6 cases showing only a relative leucocyte increase 4 also terminated fatally while under treatment in hospital. Thus, out of a total of 15 cases showing either an actual or relative leucocytosis no less than 9, or 60 per cent., died within a short time, while the remainder were discharged from hospital "relieved," mostly without any improvement in their condition.

On the other hand, when we turn to Table II. we see that out of 9 cases with no increase in the leucocytes, even of a relative degree, and in which kala-azar was not the primary disease, there was only 1 death, or 11 per cent., the fatality in that case, moreover, having been from a complicating bronchitis. Even among the 8 kala-azar cases only 2 terminated fatally while under observation, so that including them there were still only 3 deaths in hospital, or 17·65 per cent., among 17 cases with normal or diminished leucocytes. As most of these patients were in hospital from one to three months, and some of them showed improvement as a result of medicinal treatment, it is clear that, except in the kala-azar cases with marked anæmia or daily fever, surgical procedures might safely have been adopted in those with recurring ascites after repeated tappings, and who thus did not appear to be likely to completely recover under purely medical treatment.

On the contrary, several of the cases showing leucocytosis died within a short time of its discovery, although clinically indistinguishable from many of the more favourable cases with normal leucocytes, and had they been operated on only disappointment would have resulted. Case 2 of Table I. is a particularly good example of the prognostic value of the leucocyte count. He had been in hospital for seven weeks when I first examined his blood and found 14,250 leucocytes per c.mm. He had been tapped several times without any permanent improvement, and as his general condition was fairly good, he appeared to be a suitable case for surgical measures. Yet, just ten days later he became cholæmic, and I now found 30,000 leucocytes. He died comatose on the following day, an event which would probably have equally ensued had an operation been undertaken, much to the regret of the surgeon.

The type of the leucocytosis.—On turning to the differential leucocyte counts given in Table I., it will be observed that in 7 out of the 9 cases in which an actual leucocytosis was found, from 80 to 93 per cent. were polynuclears, the 2 cases showing over 90 per cent. being both in a cholæmic state which rapidly ended fatally. This polynuclear leucocytosis points to a terminal bacterial infection, very possibly due to the bacillus coli communis.

In the kala-azar cirrhosis cases shown in Table II. it will be observed that a marked degree of anæmia was always present, while the proportion of white to red corpuscles was usually reduced to much below the normal figure of about 1 to 666, as I showed long ago is so characteristic of this disease. The occasional absence of a marked relative leucopenia is due to the fact that cirrhosis is a very late complication of kala-azar, only ensuing after the patient has suffered from fever for several years, and has to some extent become immune to its effects, and partly due to the frequency of dysenteric complications, which tends to increase the leucocytes, as in Cases 29 and 32.

History of alcohol.—In the tables a minus sign (−) indicates that there was no history of alcohol having been taken by the patient, a single plus sign (+) means that he occasionally took a little, and two plus signs (+ +) that he admitted having taken it to excess. The last degree was only noted in 2 cases, while in a majority of the whole series the use of alcohol was completely denied. After allowing for such a failing being sometimes concealed, it is clear that excess of alcohol played a very small part in the etiology of these cases.

History of syphilis.—In 7 out of 18 cases in which this point was recorded syphilis was acknowledged, but this is probably not a higher proportion than would be found in the class of patient dealt with, who were all drawn from the poorer natives of India. Further, the post-mortem records show that syphilitic cirrhosis is far from common in the Calcutta records, in spite of the wide prevalence of the disease, so the great excess of cirrhosis of the liver there cannot be attributed to syphilitic infection.

History of dysentery.—A history of antecedent dysentery was obtained in no less than 18 of the 32 cases, while in the remainder the point was not noted, so it may have been present in many of them also. This strongly supports the conclusion derived from my analysis of the post-mortem records mentioned in the opening section of this paper—namely, that former chronic dysenteric ulceration is the cause of the great excess of cirrhosis of the liver in Calcutta.

SURGICAL TUBERCULOSIS: ITS NEEDS AND TREATMENT.[1]

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IN its broadest sense the term "surgical tuberculosis" is usually understood to apply to all forms of tuberculous disease other than pulmonary that can be treated by surgical measures. The term is a bad one, for it tends to imply the necessity for recourse to radical surgery. Under particular circumstances radical surgical measures may advantageously be adopted in almost every form of tuberculous disease; on the other hand, they are not invariably necessary in any form.

I shall consider the needs and treatment of surgical tuberculosis especially with reference to tuberculous disease of the bones and joints, but much of what follows will apply with almost equal force to other forms of surgical tuberculosis.

Conservative treatment which strives to preserve and restore the part diseased and not complete its destruction was long confounded with convalescent treatment, from which, in fact, it differs entirely. The natural and proper prejudices consequent on this misconception are gradually disappearing with increasing knowledge. In place of excisions and amputations before considered essential, conservative treatment properly applied commonly renders the use of the knife needless and unwarranted. Joints and limbs formerly sacrificed are now saved and their functions often restored. During the last three and a half years, out of over 700 patients suffering from tuberculous disease of the bones and joints who have been under my care at Alton, I have had to perform only one amputation, which was necessitated, not by the tuberculous disease, but because a previous operation had permitted added sepsis to complicate the condition.

When conservative treatment becomes more widely studied and more early and intelligently applied, tuberculous disease—to-day the most prolific cause of crippling in this country—will be one of the least important causes, and the mortality from surgical tuberculosis will be reduced, at a moderate estimate, to a tenth of what it now is. I propose to indicate how these much-to-be-desired results can be obtained economically and expeditiously.

Surgical tuberculosis must no longer be considered a local infection. It is a general disease, of which the bony, articular, lymphatic, or other lesions are local manifestations. Until this is recognised treatment cannot be completely effective, and its recognition involves the logical necessity of treatment being undertaken on two lines—general and local.

General Treatment.

A general disease demands general treatment. To reinforce and strengthen the natural defences against the attack of the tubercle bacillus is the surest way of defeating this attack. This is immediately evident in early and so-called pre-tubercular cases, where good general conditions alone will often convert a delicate ailing child into a strong and vigorous one. It is equally, if not more, important when the disease has obtained a firmer hold and local manifestations have appeared. Life in the open air, far from towns, in a dust- and germ-free atmosphere, and under the bactericidal and tonic action of the sun, is a first principle in antibacillary therapeutics. "By these means the patient himself will make the whole fight against the bacillus" (Castaigne).

[1] An address delivered at the annual meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis, Manchester. Much of what is contained in this paper has already been submitted in the form of a memorandum by request to the Departmental Committee on Tuberculosis now sitting.

The requirements of general treatment may be considered under the following headings: climatic; hygienic; disciplinary; dietetic; drug; other, e.g., heliotherapy, balneotherapy, &c.

Climatic.—Mountain, country, or marine air is indicated. Mountain sanatoriums for surgical tuberculous patients are almost out of the question in this country, because the mountain climate ideal for treatment in Great Britain is unobtainable; our mountains are too enshrouded in cloud and fog, the rainfall is excessive, the sunshine too limited, the extremes of temperature too severe. One of the great advantages of mountain treatment, as demonstrated by Rollier, of Leysin, and more recently by Lenormant, is its heliotherapeutic effect. This has led to the regretable mistake of regarding high altitude and heliotherapy as synonymous. It has been shown by Hahn, Robin and Binet, Duclaux, Barbier, and others that even if the actinic power of sunlight is intense on the mountains it exercises its greatest effect at the seaside. Suitable treatment, then, in England could be best obtained at the seaside or in the country.

Speaking generally, I believe that country treatment is better for the early cases, and marine for the more advanced or chronic ones, including those with old sinuses. To this rule, however, there would be exceptions.

The hospital should be reasonably remote from a town and in a district where tuberculous disease is known to be little present. If in the country, it should be at fair elevation, preferably on the slope of a hill facing south, so as to secure the maximum sunshine. A sheltered situation is not a necessity, for wind is no disadvantage; on the contrary, it exercises a bracing and stimulating effect. The district should be sunny, the rainfall not excessive, and the soil porous, and one that dries quickly after rain. The institution, therefore, should not be in a neighbourhood of a river or in a swampy district where the air is excessively humid. Sudden extremes of temperature are undesirable.

If marine, a seaside pleasure resort is contra-indicated, because here, even though the climate of the district may be extolled, the presence of excursionists and others robs the patients of what at the seaside is a prime necessity—untrammelled use of the beach. A model marine resort is Berck-sur-Mer in France. The industry of this town may be said to be the treatment of patients suffering from surgical tuberculous affections. They have the unrestricted use of the immense and magnificent beach. The presence of cripples is regarded not with abhorrence, but with satisfaction, because it is a source of profit. A town cannot at the same time be a pleasure resort and devoted to the treatment of tuberculous cripples. If the tuberculous are to be treated, then the place must be theirs to the exclusion of all others.

A marine hospital should abut on the sea and face the sun and prevailing wind to derive maximum benefit from all three. There should be an extensive beach of firm sand, on to which the patients can be wheeled or may walk unhindered. A low, exposed littoral is to be preferred to a tree-covered, sheltered one, and there should, in addition, be an extensive area of foreshore, over which the tide advances or recedes within wide limits. The prevailing wind blowing over such a beach becomes charged with substances that exercise a markedly stimulating effect on the patient. Invigorating country and marine breezes in a sunny district markedly improve the appetite and general condition of immobile and recumbent patients.

The best results, in my opinion, would be obtained by the establishment of two institutions, or of an institution with a branch hospital, the one in the country, the other at the seaside, both hospitals being under the same management, so that a continuity of treatment could be assured. It should be possible to transfer patients from one hospital to the other, so that the benefits of change of air and scene could be obtained. A case that is at a standstill or going slightly backwards could then receive the added stimulus which would often lead to cure.

Hygienic.—The value of abundant fresh air in the treatment of tuberculous disease is so well recognised that it need not be elaborated here. The hospital should be so designed that the patient practically lives in the open air, yet remains sheltered from rain and snow. The bodily attention that can be obtained only by the best nursing may be included here. The skin of patients immobilised in the ways indicated for the treatment of tuberculous arthritis requires the most careful attention to prevent the formation of sores. In few classes of patients is the necessity for constant personal attention so necessary as in the tuberculous.

Disciplinary.—Patients accepted for treatment for long periods in large institutions need kind but firm and tactful handling, as well as occupation suited to their limitations, to sustain the mental distraction that is a powerful aid to cure, and to obviate discontent and degeneration. Lack of kindly discipline and well-ordered occupation has brought upon sanatorium treatment discredit, which, however, has been more than counterbalanced by the benefit to be derived from regulated work so ably advocated by Paterson in suitable cases.

Children should be educated, adolescents trained, and adults occupied according to their capabilities. That such wholesome discipline is of the greatest benefit a visit to Alton will quickly prove. Happier patients could hardly be found in any hospital. The boys become manly little fellows, polite and engaging, the girls gentle and attractive, and in both there is a conspicuous absence of self-consciousness or self-pity. Their characters become moulded on healthy lines, which will fortify and aid them in after-life.

Dietetic.—Beyond stating that a liberal, plain, varied diet, suited to the sometimes capricious appetite of the tuberculous, should be prescribed, I make no remarks. Special diet will of course be indicated for particular cases. Milk and meat are of prime importance.

Drugs.—Owing to limitations of time and to technical considerations, I shall not dwell on this and other forms of general treatment.

Local treatment.

This is of extreme importance alike for the cure of the local lesion, the prevention or correction of deformity, and the management of complications, such as abscesses and sinuses. It is essentially a matter for a specialist, and perhaps no other disease more requires a specialist's care than does tuberculous disease of the bones and joints. That it does not receive this attention is shown by the fact that tuberculous disease causes more crippling than any other condition in this country. Only by the employment of conservative methods with minute attention to detail, each case receiving its special treatment, can results approaching perfection be obtained.

Speaking generally, for the more severe local lesions it may be said that there are three stages of treatment, depending on the progress of the disease, viz.:—

1. *Acute, commencing, and progressing disease.*—This requires absolute rest in the recumbent position and immobility of the part attacked, with the adoption of special means to correct or prevent deformity and abolish muscular spasm. The length of this stage of treatment will vary with the nature of the case, the resisting and reparative powers of the patients (which general measures will improve), the virulence of the infection, the "soil" of the patient, the site and extent of the lesion, the presence or absence of other lesions, the age of the patient, and so forth. Only prolonged experience and considerable judgment can recognise when this stage may be abandoned. It is ridiculous to assert that every case requires a similar, or even an approximately similar, period for treatment. The time required will vary within very wide limits.

2. *The chronic or subacute stage.*—Here recumbency is as a rule not necessary, but very complete immobilisation of the part attacked is essential for a double purpose: (*a*) to allow repair to take place, (*b*) to prevent the occurrence or increase of deformity.

3. *The stage of convalescence.*—Complete immobility is not essential, but protection or support, which may be given by light, accurately fitted removeable splints, is ordinarily sufficient. These may usually be discarded while the patient is at rest, but should be worn at other times.

These stages of treatment, mentioned as general guides, apply especially to the two commonest forms of bone and joint tuberculosis—spinal caries and hip disease. The length of time required in each stage will vary within very wide limits, and the decision as to when one may be abandoned and the next undertaken requires much skilled knowledge. The problem with regard to adults differs to some extent from that of children. In adults radical measures, especially in certain forms of tuberculous arthritis,

may be more often indicated, but, speaking generally, the great majority of cases will do better if conservative measures alone are employed. As a general rule, given proper technique, aspiration of abscesses, with or without the employment of modifying fluids, presents the surest, safest, and most effectual way of dealing with this exceedingly common complication.[2] Healing after aspiration fundamentally differs from healing after incision, inasmuch as with aspiration it is centripetal, while after incision it is commonly centrifugal, even when sinus formation does not ensue. This is a point of importance, and should constantly be borne in mind in deciding which method of treatment is to be adopted.

The Nature of the Institution Required.

General considerations.—From what has preceded it will be inferred that I advocate a special hospital or hospitals, administered by a skilled staff, and situated in a district known to be peculiarly suitable for the treatment of surgical tuberculosis. Moreover, it will be obvious that to procure the best results at the least expense the institution must be a very large one, and, indeed, only by the establishment of a large institution with very many beds can the fullest efficiency and economy be at the same time obtained.

The hospital at Alton, founded by Sir William Treloar, may be taken as a model. The results of treatment undertaken there are my justification for this statement. More nearly than any other institution with which I am acquainted, it fully meets the needs of those afflicted with surgical tuberculosis. It is located in a region where tuberculosis is relatively uncommon. It is so situated that the patients derive the maximum benefit from sun and air. Its wards are light and airy and well adapted for the nursing of tuberculous patients. Its equipment fulfils the needs of the work it undertakes. It is large, and, moreover, there is unlimited room for its expansion. Not only is the crippled child healed there, but he is trained in some occupation especially suited to his capacity.

Neither the general and children's hospitals nor the cripple and convalescent homes scattered all over the country can cope with the problem of the treatment of surgical tuberculosis. The former cannot detain the patients for adequate treatment, neither does their situation permit them to get the best results. The latter, in the majority of cases, have neither suitable equipment nor staff available.

The need for special institutions has long been recognised and advocated by expert authorities in the medical profession. Very tardily the necessity has been appreciated by some of our municipal authorities. But these efforts show a lack of grasp of the essentials for the solution of the problem and suffer grave defects. In the first place, these schemes provide for treatment in the immediate locality, and thereby is lost the benefit of altered climatic conditions. The institutions are small, and can neither employ nor attract a special staff. They cannot manufacture the orthopædic appliances they require. It is still not sufficiently realised that skilled knowledge of how efficiently to support and immobilise a tuberculous lesion is of infinitely greater importance than knowledge of how to remove the lesion—a crude cure at best. It will be always impossible, therefore, for such institutions to obtain either the best results, curative or orthopædic. A local hospital must always be at a disadvantage. These facts present, in my opinion, evidence of weight against the establishment of hospitals to cope with local needs for the treatment of surgical tuberculosis. The large dual hospital, under one control in especially selected localities, is, in my opinion, the best solution of the problem. In building and designing such a hospital the special work it will have to perform must be always kept in view.

The responsib lities devolving upon those entrusted with the foundation and maintenance of such institutions are heavy. To deal with the subject exhaustively is impossible in the time at my disposal, but certain points may be indicated. Treatment in urban hospitals being not only unsatisfactory but costly and undesirable, their place in the scheme will be limited to the diagnosis of these affections. They become receiving houses from which the patients would be transferred to the special hospitals.

[2] Calvé and Gauvain: The Treatment of Tuberculous Abscesses of Bony Origin by Conservative Methods, THE LANCET, March 5th, 1910, p. 633.

These special hospitals must be large, for in this way only can cost of administration and maintenance be kept low. Multiplication of such institutions means an enormous increase in expense and a corresponding diminution in efficiency. They must be specially and carefully designed for their particular work, and here great experience and foresight are necessary. While they should be cheaply built they should be substantial. It is an error to imagine that carelessly erected wooden buildings are either suitable or economical. The first cost may be low, but cost of upkeep quickly counterbalances that, and the danger, discomfort, and inconveniences arising by the employment of these buildings seriously militate against any supposed advantages. Ample provision should be made for fresh air and sunshine by extensive balconies with a southern aspect and sheltered from the rain. The wards should be so constructed that the work of the nurses and domestics is reduced to a minimum; in this way much subsequent expense will be avoided.

Both adults and children suffering from surgical tuberculosis may be conveniently treated in the same institution because the treatment and requirements are essentially the same, but it is undesirable that children should be directly associated with adults. Children, therefore, should be housed in separate blocks, and special provision should be made for the prevention of epidemic disease among them. An observation block for the reception of new cases, where each child is treated on admission in a separate cubicle, is a prime necessity. This system has proved of great value at Alton.

The site of the hospital requires anxious consideration. While remote from towns, it should be easily accessible. It is an advantage for arrangements to be made before the site is finally settled for a private railway platform to be built for the reception of patients and of goods. Negotiations should be conducted with the railway company at the outset for liberal terms and advantageous service. Land of little value will be correspondingly cheaper to purchase.

The hospital should, if possible, be built on the slope of a hill having a southerly aspect, so that the maximum of sun and air may be obtained and good drainage be secured. An abundant and pure water-supply is a first necessity. The cost of water and drainage should be low and the rates to be levied should not be excessive. A reliable and economical system of heating and lighting should be adopted, but it should be elastic enough to cope successfully with any sudden strain.

Arrangements for internal administration must be planned with minute care. A central kitchen with plant for economical, but good, cooking is essential, a generous allowance of suitable food suited to the capricious appetite of the patient being necessary, and the stores, larders, pasteurising room, and other necessary offices must be designed with attention to the smallest detail. Buildings must be so grouped that the food and stores may be distributed expeditiously and safely, and refuse removed without danger or offence. A modern laundry should be provided.

In arranging accommodation for the patients there should be a clear idea as to the proportion of those requiring recumbent or ambulatory treatment—a matter of considerable importance. In France, leading authorities estimate that at least 50 per cent. of the beds are required for recumbent cases. At Alton the number is still higher, for the percentage of serious cases is higher than at similar institutions in France, one reason being that the number of beds available in England at present is so small. I estimate that at least 70 per cent. of the cases require recumbent treatment.

Careful consideration must be given to the size of wards, arrangement of wards, arrangement of special wards, of balconies, sanitary arrangements, ward fittings, kind of cots, beds, and stands best adapted for nursing these patients, arrangements for septic cases, distribution of food, accessibility of kitchens, stores, and dispensaries. Provision must be made for infectious cases, modes of avoiding epidemic disease, arrangements for dealing with patients with scalp infections, rhinitis, otorrhœa, vaginitis, &c.

The therapeutic equipment of the hospital, while not expensive, must be thorough and perfect. It would include an operating theatre and aspiration rooms. A serviceable X ray department is of extreme importance. A large well-lighted plaster-room with waiting-room, and a splint-room for the manufacture of splints from casts is very desirable, as it is

cheaper and very much better to make splints than to buy them. Not one splint has been bought since we have been established at Alton; every splint required has been made on the premises. The majority of patients leave with light, strong, suitable, well-fitting splints which we make ourselves. Patients are charged merely the estimated cost of materials. Out of 190 discharged last year 141 left with splints or spinal jackets. It is noteworthy that the manufacture of these splints has proved a very suitable trade for the occupation of certain of the crippled lads being trained in our college, and arrangements have now been made whereby these splints may be supplied to patients outside the hospital who require them.

A compact bacteriological laboratory is of importance. Cultures from all sinuses should be taken on admission to the observation wards, and patients with added infections should be nursed in wards reserved for their specific added infecting organism—e.g., streptococcal cases in one ward, staphylococcal in another, mixed infections in a third, and so on. Provision may be required for light and bath treatment.

The staff.—The medical staff should be under a medical superintendent skilled in both treatment and administration. He should have absolute responsibility, freedom of action, and unhampered control.

In France the surgeons in charge are largely relieved of administrative duties, but in such a case the manager or secretary of the hospital should work under the medical superintendent and not independently of him, to avoid friction and to secure efficiency and economy. In other words, the medical superintendent should be relieved of the routine of administrative work, but should be held responsible for the manner in which it is performed. I see no objection to the medical superintendent being permitted to treat private patients afflicted with the special disease to which he has devoted himself. It will ensure him better prospects, raise the standard of his work, and make him in every way a better and more capable practitioner. The time that he may devote to private practice will be limited, of course, by the time he must devote to the service of the hospital. This system is adopted with conspicuous success in France. Only in this way can the special work be made adequately attractive. It must be remembered that the medical officers will be called upon to perform monotonous duties extremely exacting and involving much attention to detail, and in remote districts possessing few attractions.

The number of beds per medical officer would depend on the standard of work required and the severity of the cases admitted. Also the hospital would require the services of a competent radiographer and a bacteriologist, the former being especially needful. The nursing staff under a competent matron requires special training. The sisters should be well qualified for their duties and have received a good general hospital training as well as special training for this particular work. The nurses should be probationers, preferably with no previous training; ordinary hospital nurses are, in my experience, unsuited for this special work, except as sisters. The best ones can usually obtain sisters' posts or remunerative private work. The remainder are certainly not good enough for the special duties they are called upon to perform. The number required will, to a considerable extent, depend upon the design and conveniences of the hospital and the standard of work required. It will probably be found that at least one nurse to from 4 to 5 patients will be necessary if proper attention is to be given to the patients. For male adults I should advocate male nurses, and would suggest the employment of old R.A.M.C. orderlies or similar attendants.

Classification of Cases.

It will be found that cases come for treatment which are acute, subacute, chronic, and with the tuberculous mischief apparently arrested, but with more or less deformity remaining. A considerable proportion will have abscesses or sinuses. The length of time these different cases call for treatment varies enormously. Early cases demand careful treatment until the disease is arrested and danger of subsequent deformity avoided. These offer the best prospects of complete cure without subsequent, or with little, deformity. It is of the utmost importance to admit them for treatment at the earliest possible moment, and the value of early diagnosis for this purpose cannot be over-estimated.

Deformed cases should have the deformity corrected or reduced where possible. Old, quiescent, badly deformed spinal cases, without abscesses or sinuses, which cannot have the deformity corrected, should be discharged as soon as that benefit which change of air and good food can produce has been gained. The deformities in old hip, knee, and other cases may be often lessened by osteotomy and other treatment that can be given in orthopædic or general hospitals, and consequently need not be referred to the special hospital. Cases with abscesses unopened are essentially suitable for conservative treatment, and the result of such treatment is usually brilliant. Patients with sinuses infected form the most serious class.

It is noteworthy that French authorities estimate that 75 per cent. of sinus cases suffering from spinal lesions will die. Our experience at Alton is that a considerably larger proportion may be cured, but they are exceedingly difficult cases. The prognosis is always worse in these cases than in those not handicapped by added infection, and it may be estimated that at least 50 per cent. of patients suffering from spinal caries who have spinal abscesses opened progress to sinus formation. Not more than from 2 to 5 per cent. treated conservatively develop sinuses, and these are never very serious. I have not seen one single case develop a serious sinus, and every one of our cases has recovered.

The whole question of length of treatment required for the different classes of patients is a very complex one. If well organised means for after-care be devised, such as are in force at Alton, the length of stay at the special hospital may be greatly lessened without undue risk to the patient.

Education, Training, and Employment of Patients.

Modern requirements demand in the interest of both the patient and the community much more than the mere treatment of the patient's disease. No scheme for the treatment of surgical tuberculosis can be considered complete unless simultaneously provision is made for the patient to receive, if a child, that education which his condition would permit; if an adolescent, technical training in an occupation that will assist or enable him to earn his livelihood when discharged; and if an adult, an occupation suited to his limitations.

In our college at Alton crippled lads from the age of 14 to 18 receive technical training in an *occupation suited to their limitations* for a period of three years, and on discharge are able to take up remunerative and self-supporting occupations, to their own gain and that of the community. It need hardly be said that, under the complex social conditions now prevailing, the utmost care and judgment must be exercised in the selection of suitable occupations.

The requirements of adolescent and adult convalescent patients might be best met by the establishment of an industrial colony adjacent to the hospital, but in its own separate grounds. Such a colony would not be directly remunerative, but would, to a considerable extent, contribute to the cost of its maintenance. It would have to be distinctly understood that all patients, as soon as sufficiently cured to return to their work and able to cope with outside conditions, should be discharged. Only those would be detained whose condition was such that they would be unable to work if discharged. This aspect of the problem is so vast and important that I cannot do more than allude to it in this paper.

The after-care of discharged patients.—This is a most important and too often neglected matter.

The system in force at Alton is as follows. When a patient is discharged a detailed letter is sent to the parent or guardian explaining exactly how the future of the patient is to be guarded. He is informed that the splint provided is to be removed nightly and the patient's skin washed and powdered, to prevent it from becoming sore. Directions are given as to when the splint must be worn, when it may be discarded, and how it should be put on. Instructions are given as to the diet and hygiene.

London parents are requested to bring the discharged child within three months of discharge to our out-patients' department in London for inspection and advice. They are instructed to notify me at once if for any reason they should be anxious about the patient's condition or if they do not understand directions given; also as to the amount of rest the child requires, the school he should attend, the occupation he should obtain, the precautions that should be observed, and so forth.

For the success of this scheme the coöperation of the parent or guardian is essential. While this cooperation is

gladly given by many it is a matter for real regret that it is denied by some. In the patient's own interest it is to be desired that such coöperation could be compulsory. By this means a recurrence might often be avoided, the interests and future of the patient safeguarded, and if recurrence of the disease took place it might be immediately treated.

Statistics from Alton with Comments.

The cases received include the most severe forms of surgical tuberculosis. From my own observations and from reports published I am able to state that the proportion of serious cases at Alton is considerably higher than at the somewhat similar institutions which have been long established in France. It will be seen (Table I.) that out of 707 patients received at Alton no fewer than 295 suffered from tuberculous disease of the spine, and of these a large proportion suffered from abscesses, sinuses, or paraplegia.

Patients are entered as discharged who died. Out of the 707 who were admitted 8 died in hospital, and I have ascertained that 8 died after discharge. Of the last named the condition of 7 was hopeless when the patient left. It should be noted that tuberculous disease was probably not responsible for the death of 3 of these patients. Where possible the parents are informed when the patient's condition appears to be absolutely hopeless, as sometimes they prefer to remove the child. Possibly other patients have died of whom I have no record, but they must certainly be few, as every endeavour is made to remain in touch with discharged patients.

The mortality, then, amongst tuberculous patients since the hospital was opened in September, 1908, was in the hospital 1·1 per cent., altogether 2·2 per cent., possibly more, but certainly not much more. I can find no more favourable figures anywhere, bearing in mind the nature of the cases treated.

By "apparently cured" in Table II. is meant that the disease appears to be quite arrested, abscesses absent, sinuses healed, and the patient perfectly able to resume his ordinary life, not under skilled supervision. The number of cases readmitted for recurrence of the disease is 2 per cent. Recurrences may have occurred which have not been readmitted. I have record of recurrences in only two patients who were not readmitted.

It should be mentioned that the patients are classified according to their principal lesion. A very large number have multiple lesions, but these are called cases of "multiple tubercle" only when occurring simply in the smaller joints and not affecting spine, hip, or knee. For example, a patient with tuberculous disease of the spine, hip, and knee would be entered as tuberculous disease of the spine.

Cases entered as "other tuberculous lesions" include patients suffering from bony tuberculosis in whom a joint is not involved, or cases of tuberculous peritonitis, adenitis, &c.

TABLE I.—*Tuberculous Patients Admitted and Discharged—with their Lesions.*

Year.	—	Spine	Hip.	Knee.	Ankle.	Shoulder.	Multiple.	Other.	Total.
1908	*A.	32	19	21	2	Nil.	2	4	80
	†D.	1	Nil.	1	Nil.	,,	Nil.	Nil.	2
1909	A.	83	59	20	7	,,	3	21	193
	D.	17	26	18	1	,,	2	13	77
1910	A.	61	52	23	7	,,	3	10	156
	D.	58	26	33	9	,,	3	10	139
1911	A.	80	61	28	6	1	6	12	194
	D.	82	64	22	5	1	4	12	190
1912	A.	39	22	17	3	Nil.	2	1	84
	D.	36	24	12	2	,,	4	4	82

*A. = Admitted. †D. = Discharged.

Total tuberculous patients admitted to May 31st, 1912 707
,, ,, ,, discharged ,, ,, ... 489
Under treatment May 31st, 1912 218

Total Tuberculous Patients, with their Lesions, to May 31st, 1912.

Spine	296 admitted	196 discharged.
Hip	213 ,, ...	140 ,,
Knee	107 ,, ...	83 ,,
Other	49 ,, ...	39 ,,
Ankle	25 ,, ...	17 ,,
Multiple	17 ,, ...	13 ,,
Shoulder	1 ,, ...	1 ,,

Total: 707 admitted; 489 discharged.

TABLE II.—*Results of Treatment.*

—	1908	1909	1910	1911	1912	Total.
Number of patients admitted	102	196	158	198	84	738
Number tuberculous	80	193	156	194	84	707
Number other than tuberculous	22	3	2	4	Nil	31
Number discharged	3	99	142	194	82	520
Number tuberculous discharged	2	77	139	190	81	489
Number other than tuberculous discharged	1	22	3	4	1	31
Number tuberculous apparently cured ...	2	68	133	174	78	455
Number tuberculous who died	Nil.	Nil.	Nil.	6	2	8
Number tuberculous not improved... ...	,,	6	6	4	Nil.	16
Number transferred to other hospitals or removed by parents before treatment completed	,,	3	Nil.	6	1	10
Number of recurrences readmitted... ...	,,	Nil.	1	4	5	10

TABLE III.—*Average Duration of Stay.*

Tuberculous disease of hip	553	days.
,, ,, spine...	441	,,
,, ,, knee...	351	,,
,, ,, ankle...	298	,,
,, ,, multiple...	256	,,
,, ,, other...	174	,,
,, ,, shoulder...	168	,,
Average stay each patient...	320·15	days.

TABLE IV.—*Aspirations performed during 1911.*

—	Ankle.	Spine.	Hip.	Knee.	Shoulder.	Other.	Total.
Total	3	147	217	69	15	32	483
Average ...	3	4·2	6·6	5·3	5	2·3	4·6

In conclusion, I would take this opportunity of expressing my indebtedness to my friend Dr. J. Calvé, of Berck-sur-Mer, to whom I owe much for constant help and coöperation.

Alton.

MERCURIAL ADMINISTRATION:

SOME UNCOMMON METHODS IN THE TREATMENT OF SYPHILIS.

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A NOTE on some of the less common methods in the treatment of syphilis may be of practical value, inasmuch as several of them may be quite easily employed in the ordinary routine of general practice. It must, however, not be taken that the methods I am now about to describe are to be employed as a routine treatment of syphilis, to the disadvantage of the more usual and potent methods, but that they may be used in conjunction with the ordinary routine, or where for some reason or other it cannot be employed. Frequently in my own practice I have employed one or other of these lesser known methods with excellent results.

The administration of mercury for the treatment of syphilis can be carried out by eight different methods: (1) oral; (2) intramuscular injection; (3) inunction; (4) intravenously; (5) by the respiratory tract—(*a*) mask, (*b*) chest protector, (*c*) plaster; (6) suppositories; (7) fumigation; (8) baths. In this short article I do not propose to deal with either of the first three methods.

4. *Intravenous injection.*—The intravenous method was first introduced in 1893, and has now to a great extent been given up as liable to cause violent toxic symptoms as well as phlebitis and thrombosis. The preparation now employed is a 1 per cent. solution of cyanide of mercury injected daily by means of a small syringe and fine needle into a vein in the arm, made prominent by the application of an elastic bandage above. Rigid asepsis is necessary. The part is cleaned, and the needle is introduced into the vein in the direction of the blood-stream; the bandage is then removed and the solution is injected, care being taken that all air in

the syringe is got rid of before injection in order to avoid danger of embolism. The needle is rapidly withdrawn, and the wound is closed with collodion and gauze. The usual dose is 20 minims, an injection being given every day. They are quite painless. It is a method which should not be overlooked and is recommended for persistent cerebral headaches of the secondary period, and for specific affections of the eye; it gives good results where other methods fail (Emery and Chatin [1]).

5. *By the respiratory tract.*—It has been demonstrated by Juliusberg [2] that the mercury employed in inunction for the treatment of syphilis enters the system, not, as was formerly believed, through the skin, but by means of respiration, the mercury becoming volatilised and then inhaled. Under these circumstances the inunction method of treatment should be included under the above heading, but in order to avoid confusion I prefer to leave it in a class by itself, as the popular idea is that the mercury is absorbed through the skin. It is probable that little, if any, mercury is absorbed in this manner. Microscopical examination shows us that the only possible points of entry are the sweat and sebaceous glands, so that in any case only an infinitesimal amount could be absorbed by the skin.

Mercury may be absorbed through the respiratory tract in several ways. Two methods have been suggested to this end. Thalmann [3] recommends the introduction of a small quantity of mercurial ointment into the anterior nares, and Cronquist [4] employed hydrargyrum c. creta to the amount of 45 grains a day as a nasal snuff. Both these methods are more or less irritating to the nasal mucosa and frequently cause epistaxis, and they may be discarded as being unsuitable.

(*a*) *Mask or "merkalator."*—Inhalation through the medium of a mask impregnated with mercury was introduced by Kromeyer, [5] and is much more practicable and effective than either of the two former suggestions. The mask is a flexible wire contrivance covered with a double layer of gauze, which is impregnated with 8 grm. metallic mercury. The mask is attached to the face by means of two tapes tied round the head; thus the mask fits over the mouth and nose, and the vaporised mercury is inspired. A course of treatment should be continued for six weeks, the mask being worn during sleep. A single mask is sufficient for ten days' treatment; it is worn in one position for five days, then turned so that the upper portion which has been over the nose is brought over the mouth for the next few days, and is then discarded. This form of treatment has many advantages in private practice; it is cleanly and convenient, and is very suitable as an alternative method and as a rest from internal administration, it does not cause gastric disturbance, and any symptoms of intoxication may at once be stopped by leaving off the mask.

(*b*) *Chest protectors or mercolint bibs.*—Merget [6] was the first to employ this method by means of a "flanelle mercurielle." Welander [7] used a bag in which every day he spread mercurial ointment. Ahman's [8] bag was filled daily with mercuriol, a powder containing 40 per cent. mercury, being a double amalgam of mercury with tin and aluminium. More recently Blaschko [9] has introduced a chest protector called "mercolint bib," consisting of cotton-wool impregnated with an ointment containing 90 per cent. mercury. These chest protectors or bibs are made in three strengths; they are double—that is to say, there is a part to go over the chest and one to go over the back, joined with straps which fit over the shoulder. They answer very well as a mild mercurial treatment; they should be worn day and night until they show signs of turning white, when they should be discarded and a new one obtained. They can be used over an indefinite period as a mild mercurial course. The mask and bib are to be obtained from Beiersdorf and Co.

(*c*) *Plaster.*—Mercurial plasters are still occasionally used in the hospitals of Paris for the treatment of syphilis; that known as "emplastrum de Vigo" is generally employed, containing 20 per cent. mercury. In this country the Jewish race, to a certain extent, are still believers in the efficacy of plasters. Quinquaud [10] advocated a plaster consisting of calomel vapourised, 10 parts; ol. ricini, 3 parts; diachylon plaster, 30 parts. Ten centimetres square of this plaster is kept applied to the skin for a week and then renewed. He has obtained very good results from its use. The treatment of syphilis by means of plasters is not satisfactory, and they should only be employed for the local treatment of certain syphilides. The best plasters are the guttaplasts Nos. 15, 199, or salvemull 1016.

6. *Suppositories.*—This method was in use as long ago as 1884, but for ten years previous to this Bryant [11] had been employing suppositories containing mercury. He considered the drug used in this way to act as well as if given by the mouth, and it had also the advantage of in no way interfering with the digestion. He knew of no objection to its use. More recently Audry [12] has had excellent results from the use of mercury in this manner.

Suppositories of mercury are prepared by using the French grey oil or "huile grise," containing 40 per cent. metallic mercury. They are made to contain 0·02, 0·03, 0·04 grm. metallic mercury, the one containing 0·03 grm. being the most useful; for children it is usual to give the lesser dose. To obtain a suppository of these strengths when using the French 40 per cent. grey oil it is only necessary to remember that for each centigramme (0·01), equivalent to 1/7th grain of metallic mercury, one must take 0·025 grm. grey oil. Therefore, for a suppository containing 0·03 (3 cgm.) it is necessary to take 7½ cgm. (0·075) grey oil and this is compounded with 4 grm. cocoa butter; the prescription would run as follows: Grey oil, 40 per cent. (French), 0·075 grm. Ol. theobrom., 4·0 grm. Fiat suppository. S. one at bedtime.

A suppository may be given every night for a month, then a break of a week is made, after which treatment may be begun again. Mercury is tolerated very well, and it is a very serviceable alternative method and may be employed when the pill treatment is causing diarrhœa. It is also useful when mercury cannot be given by the mouth and for children.

7. *Fumigation.*—This is one of the oldest methods of mercurial administration; it was in vogue during the sixteenth century, and then was often combined with the sweating process. It is now little used except in cases of widely distributed eruptions and obstinate ulcerations on the skin.

To give a mercurial fumigation or vapour bath the proceeding is as follows. The patient sits naked on a wooden chair and is covered from the shoulders with a blanket or sheet which extends to the ground, the head being uncovered. Twenty grains of calomel are vapourised over a spirit lamp placed under the chair, care being taken that the vapour is not inhaled. The volatilisation of the calomel requires about 15–20 minutes, but the patient should remain seated on the chair ten minutes longer after the lamp is extinguished; he is then put to bed for an hour. The bath may be given every other day or less often, according to circumstances, and may be continued for one to two months if not causing too much weakness and is giving satisfactory results. This form of treatment is of great benefit in dealing with obstinate eruptions, chiefly on account of its local effects, but as a routine treatment is of little use and is to be avoided.

Local fumigation by means of a calomel fumigator cannot, however, be too highly praised. The instrument complete costs only a few shillings, and the results obtained by its use in chronic ulceration, mucous plaques, and specific onychia are at times quite wonderful, ulcerations of several months' duration often healing in as many days. The fumigator consists of a glass tube about 10 inches long, pointed at one end and provided with bellows at the other. In the middle the glass is blown out into a bulb. A small spirit-lamp hangs on the glass tube so that the flame can play just under the bulb. In the bulb is placed 10 grains of calomel, which, on becoming vaporised by the heat, is blown on to the affected part by means of the bellows.

8. *Baths.*—Baths have not been very successful as a means of administering mercury; many attempts have from time to time been made, but the results are not very satisfactory. The following formulæ are suitable for use; the bath must be made of wood or some substance that cannot be acted on by the mercury. Hyd. perchlor., ac. hydrochlor. dil., āā ℥i; aquam, 30 gallons. Or—Hyd. biniod., ℥i.; sod. chlor., ℥ii.; aquam, 30 gallons. A bath may be given combined with the passage of a constant electric current.

Somewhat weaker baths are useful for children suffering from the cutaneous symptoms of hereditary syphilis. In adults the milder manifestations of cutaneous syphilis may

disappear during their use, but to obtain benefit the duration of the bath should be much prolonged and the use of baths of long duration is very weakening, and they are also uncertain in their action and consequently unsatisfactory in practice. These baths are, of course, excellent for any form of parasitic affection, and are also employed in pityriasis rubra.

As is exceedingly well-known there may occur during a course of treatment by mercury stomatitis or gingivitis and diarrhœa.

Stomatitis or gingivitis is of very frequent occurrence unless the teeth and gums have been carefully attended to from the beginning of the course. It is of the greatest importance to keep the mouth and gums in a healthy condition and free as far as possible from sources of infection. This may be accomplished by the employment of a suitable mouth-wash and tooth-paste. The teeth should be brushed after every meal; it is important in order to avoid lacerating the gums that a small toothbrush of badger's hair be employed. The tooth-paste I order is one known under the name of "Pebeco," and for mouth-wash I order either hydrogen peroxide 5 vols. or a lotion containing liq. aluminii aceto-tart. P.G. The mouth-wash should be used every one to two hours; a small flask holding enough for the day's use may be carried in the pocket.

Diarrhœa.—This condition is not likely to arise unless there has been great indiscretion in the matter of diet. A liberal diet is necessary, care being taken to avoid articles which have a tendency to produce looseness of the bowels, indigestion, or fermentative changes. Care must be taken, however, that the bowels be opened every day; any tendency to constipation should be corrected by an occasional saline purge. Should diarrhœa occur, the onset is sudden, severe, and associated with much wind and blood-stained stools. The treatment consists at once in giving 25 drops of tr. opii, and to be repeated again in three hours if necessary, the administration of mercury, of course, being stopped for a few days.

Conclusions.—There is no doubt that either the intramuscular injection or the inunction treatment is by far the most satisfactory way of treating syphilis and least liable to be followed by relapses. For the ordinary routine treatment of syphilis intramuscular injection is preferable; it is more convenient and cleanly, and does not take much time during the day, but in nervous lesions following on late syphilis—e.g., tabes—the inunction treatment is as a rule more satisfactory, the results being sometimes marvellous.

Treatment by the mouth should only be carried out when it is not possible to give injections or inunction; it is certainly often useful to give mercury by the mouth between the routine courses of injection. The intravenous method is better left alone except in very severe cases where other means have failed, and in acute lesions of the ophthalmic apparatus where there is danger of loss of sight.

Treatment by means of the "mask" is the most satisfactory method of introducing the mercury by respiration; it is certainly very suitable as an alternative method to the oral administration, being cleanly, simple to carry out, and effective. The same applies to the "mercurial bib," but I think somewhat better results are obtained with the mask; the bib is very suitable for children.

Suppositories offer a good alternative method and may be continued off and on for a long time; they are *par excellence* the simplest method of giving mercury secretly when it is necessary.

Fumigation is excellent for chronic lesions if used with the simple apparatus I have described, but where it is not possible to carry out this, the application of a mercurial plaster will often cause a chronic lesion to heal. Baths are somewhat dangerous and unreliable, but may be employed where a syphilitic lesion is complicated with a parasitic one.

I make no attempt to give in detail the results obtained by the various authors I have quoted, but if their reports are referred to the results will be found to be very satisfactory, and show that the various methods employed have a proved value in syphilitic therapy. My own experience (of these remedies) coincides with these findings, and has frequently led me to employ one or other of these modes of treatment in cases where a change from the routine method is indicated.

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THE VASCULAR SYMPTOMS IN "CERVICAL" RIB.

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THE vascular symptoms in cases of cervical rib are, briefly, cyanosis and coldness of a portion of the affected limb, together with diminution in the pulse, and possibly delay in its rise to a maximum. Œdema has also been noticed in some instances.[1] It has been usual to ascribe these symptoms to pressure on the subclavian artery as it passes over the uppermost rib.[2] The occurrence of œdema, however, suggests that such could not be a complete explanation. And, indeed, it is difficult on these grounds to understand why the vascular symptoms should be most pronounced in the hand, and not at the site where the pressure is said to occur. Aneurysm of the vessel has been recorded, but such instances are rare and less frequently met with than cases which exhibit in the hand a condition somewhat similar to Raynaud's disease.

Instances of cervical rib more often exhibit a nerve lesion than vascular disturbance. But occasionally the vascular symptoms are so prominent as to overshadow the nervous condition. Such a case was admitted recently to the Manchester Royal Infirmary under the care of Mr. E. D. Telford, to whom I am indebted for permission to make the following preliminary report.

The patient was a married man aged 27. He had for the past 12 years been occupied in manual work. In March, 1911, there were some numbness and pallor of the right index finger. This spread to the thumb, to the middle finger, and ultimately to the whole hand. He gave up his manual work and became a commercial traveller. Associated with this numbness at a later date was a certain amount of neuralgia, which became more pronounced in January, 1912, when it was accompanied by a "pins and needles" sensation on pressure over the ulnar nerve in the forearm and hand, and some tenderness of the skin over the antecubital fossa. When he was examined on March 14th, 1912, he had to keep the limb carefully wrapped up to prevent it becoming blue and cold. On washing in warm water the hand immediately went white and about five minutes later became deep red in colour. The walls of the brachial, radial, and ulnar arteries were so thickened that they felt like solid cords, and no pulse was palpable in these vessels. The obliteration extended up the brachial vessel to within an inch of the axillary artery, which was pulsating normally. As regards the collateral circulation, on careful palpation one could feel pulsation in the superior and inferior profunda vessels, and also in a small artery in the situation of the anterior interosseous at the back of the wrist. Investigation did not reveal any other vessels enlarged sufficiently to be palpable. The nerve symptoms, apart from the sensory disturbance just mentioned, consisted only in wasting of the flexor brevis and opponens of the little finger, with some disuse atrophy of the arm muscles generally.

The skiagram showed a rudimentary rib articulating with the first complete rib, about the midpoint of the latter. The left side showed a small rudimentary rib which was free at its distal extremity. Through the skin the artery and nerves could be felt displaced upwards and forwards. The pulse in both limbs was synchronous, and by comparison with the pulse in carotid and femoral arteries it was shown to be of good tension and not delayed in point of time. There was no thickening of any arterial wall except in the right arm. In all other respects the patient's health and history were good.

The occurrence of this case suggested to the writer the possibility of some other cause of the vascular disturbance than simple mechanical pressure on the artery itself. One or two facts regarding the anatomy of the subclavian artery point to the unlikeliness of mechanical pressure upon its trunk except in experimental conditions, such as forcible dragging downward of the limb.

In its passage outward between the scalene muscles there is a well-marked sigmoid curve on the artery which allows of movement of the shoulder without damage to the vessel.[2] This is similar to, but less pronounced than, the tortuosity of the facial artery, which enables the latter vessel to lengthen when the mouth is opened. This sigmoid curve on the subclavian artery is more pronounced in children and in cases of cervical rib, and is in all cases sufficient to prevent stretching of the vessel over the bone. A case of Glénard's disease with considerable range of movement of the upper chest enabled me recently to study the effect of strong contraction of the scalenes on the subclavian vessel. The disposition of the muscles around it is such that when they contract and elevate the whole operculum they do not press upon the vessel sufficiently to constrict it.

On studying the appearance of the vessel itself one finds that the portion whose calibre is least forms the summit of the arch described by the vessel as it passes from thorax to axilla. This is apparent also in certain cases of "cervical" rib. The constriction is not to be taken as indication of compression by muscles, for, as Poirier points out, the narrowed portion or *isthmus* is 10 mm. in length, of which the distal 5 mm. lie beyond the scalenes. Stahel gives the calibre of the subclavian artery thus: proximal limb of arch, 27 mm.; summit of arch, 15 mm.; distal limb of arch, 20 mm. This author explains the phenomenon on physical grounds. When an artery describes a pronounced curve it produces at the summit of the arch a contraction of the fluid vein, this contraction being due to centrifugal force. Where the fluid vein contracts the vessel naturally becomes narrower.[6] The flattening which is sometimes noted in the subclavian artery at the summit of its curve is not due to constriction by muscles, but is another practical application of the laws of hydrodynamics. Engineers imitate this flattening of the tube in carrying a fluid vein over the summit of a curve.

In the case quoted in this communication the subclavian artery was found pulsating normally even when the arm was dragged forcibly downward during the operation. Moreover, scraping of the scalenus anticus from its insertion, and even resection of the offending rib, did not result in a more vigorous pulsation, as would have been the case had there been mechanical pressure on the vessel. It is possible, therefore, that direct mechanical pressure on the vessel as it passes between the scalene muscles may not be the complete explanation of those vascular symptoms which have so far been ascribed thereto, although mechanical pressure may be present in exceptional circumstances.

The commencement of the symptoms in the fingers with cyanosis and coldness, their similarity to those of Raynaud's disease, and the occasional occurrence of œdema, suggest sympathetic disturbance, the nervous supply to the blood-vessels being damaged. In rare instances cases of cervical rib have been recorded exhibiting characteristic ocular symptoms which are also sympathetic in origin. No satisfactory explanation has been given of the anatomy underlying such cases, beyond the fact that the pre-ganglionic sympathetic fibres concerned pass out into the sympathetic chain along the uppermost dorsal nerves.

The suggestion derived from this fact—namely, that in the case quoted the great thickening of the wall of the main vessels of the affected arm might in reality be a trophic change due to disturbance in the sympathetic supply—drew my attention to the anatomy of the posterior portion of the brachial plexus. I desired to see if such a view as that just stated were in correspondence with the facts revealed by an investigation of this region. There is no reason to doubt the validity of the explanation of nervous symptoms in cervical rib. They are undoubtedly due to mechanical pressure which most naturally develops in young adult females.[3,9] It is among the fibres reaching the plexus by way of the first dorsal nerve that damage most frequently occurs. The site of injury is just beyond the point where the eighth cervical and first dorsal nerves unite to form the lowest brachial trunk, and shortly after the first dorsal has received a small accession of fibres from the second dorsal nerve.

This communication has been noted by several observers. Cunningham stated it to occur in 70 per cent. of all cases.[7] In a survey of the brachial plexus taken over a wide range of mammalian forms and rendered possible by the generosity of Messrs. Jennison of Belle Vue, I observed that the communication between these two nerves is obviously an outlying part of the sympathetic chain in many instances. I therefore investigated the condition afresh in man, and the results of the whole research are published elsewhere.[10]

Meantime it may be stated that in man, as in the lower mammals, I frequently found this communication to be sympathetic in constitution. The figure shows a well-marked instance of the condition which was verified by histological examination. In this instance the communication between the first and second dorsal nerves consisted mostly of non-medullated and small medullated fibres. These fibres form part of the visceral supply of the upper limb, and in consequence of their position in the plexus they will be liable to mechanical pressure at the inner border of the uppermost rib, just as are the fibres passing direct from the spinal cord into the first dorsal nerve. We know that nerve fibres do not become arranged till just before they are given off from the parent trunk, and that this is especially true of the proximal part of the brachial nerves (Bruandet and Humbert).[8] Thus, sometimes the sympathetic fibres may be involved more than the spinal fibres, although the reverse of this condition is more usually found.

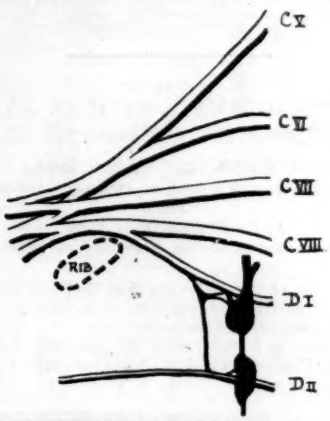

Diagram of right brachial plexus to show the communication between the first and second dorsal nerves and its relation to the sympathetic chain. Only a portion of the sympathetic chain is figured. The dotted lines show the normal relation of the first rib to the plexus, and also indicate the relative position, with regard to the nerves, of the cervical rib when present.

Involvement of sympathetic fibres to the vessels affords an explanation of the vascular symptoms in cervical rib, and seems to be warranted by the anatomical facts just mentioned. It will account for the more frequent involvement, first, of the peripheral portions of the vascular system rather than of the proximal part where the artery enters the arm. In the case quoted it will explain why the thickening of the vessel wall started at the periphery and spread in a proximal direction. It will be seen that the effect of ribs, after their formation, on vessels and nerves which become altered in position with the growth of the individual toward adult form[3] is a very different thing from the influence of vessels and nerves on the development of the ribs at the thoracic inlet.[5]

Summary.—1. In the condition known as cervical rib, any explanation of the vascular phenomena may be found inadequate if it depends only on direct mechanical pressure on the subclavian artery. 2. Clinical and anatomical evidence suggest that the vascular symptoms may be trophic in character and caused by a lesion of the sympathetic fibres in the lower part of the brachial plexus. 3. Certain anatomical facts indicate that damage may occur to the sympathetic fibres to the arm in the situation where a lesion of the spinal fibres is likely to occur in cases of cervical rib. 4. The

anatomical disposition of the parts around the subclavian artery as it passes from thorax to axilla indicates that this cannot be the site of injury to the vessel or to sympathetic nerves surrounding it.

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Manchester.

A CASE OF
MULTIPLE GUMMATA WITH AN UNUSUAL DEFORMITY OF THE LIVER.

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THE interest of the following case lies, not so much in the pathological conditions present, as in the rare deformity of the liver discovered at the necropsy.

The patient, a female aged 58, was admitted to the wards of St. Pancras Infirmary (North) on April 13th, 1911, suffering from retention of urine and general debility. When first seen she had a dazed and expressionless look, sallow skin, and was very poorly nourished. No history of syphilis was obtainable, and her body bore no traces, either old or recent, of that disease. The clinical signs present were diminished knee-jerks, impairment of tactile sensation over the outer surface of the legs and dorsum of the feet; small, almost pin-point pupils, which failed to react to light, pallor of the optic discs with slight blurring of the edges, speech thick and indistinct, and she answered questions put to her in a lackadaisical fashion. Her whole attitude was one of disinterestedness and apathy, though her mental functions remained unimpaired. Rombergism was absent; there were no tremors and no apparent interference with her power of coördination. The bowels were constipated and, as already stated, she was unable to void her urine, which had to be drawn off by catheter.

About two months after admission swellings made their appearance on the shafts of several of the bones. These were fusiform in shape, firm in consistence, fixed, and quite painless. The bones affected were the left radius, the metacarpal bone of the left thumb (at the site of an ununited fracture), the left clavicle, and the right tibia. About the same time she complained of severe epigastric pain, which on examination was found to proceed from perihepatitis. The diagnosis made was that of gummata affecting the bones above mentioned and the liver, with signs of commencing locomotor ataxy. Large doses of iodide of potassium were prescribed, and under the influence of this drug the perihepatitis rapidly cleared up and the swellings disappeared from the bones in the space of six weeks. The nervous symptoms, however, remained, and instead of improving continued steadily to get worse. She became more listless and apathetic, the knee-jerks disappeared, incoordination became marked, anæsthesia increased, and she gradually lost the use of her limbs. Instead of there being retention she became incontinent both of urine and of fæces, bedsores developed, and ultimately she died from exhaustion in the early part of December, nine months after admission. The final stage of her illness resembled very closely that of locomotor ataxy, but the train of symptoms leading up to that and the length of time between the presumed date of the onset of her symptoms and her death were not quite typical of this disease.

Reproduction of photograph showing unusual deformity of liver—viz., separation of principal lobes. A, Branches of hepatic artery and portal vein. B, Bile duct, showing branch to gall-bladder. C, Between limbs of the white cross is cut end of portal vein. D, Scar of a gumma. E, Gall-bladder.

Necropsy.—A thorough examination of the body was made. The only remains of the gummata on the shafts of the bones were a fibrous deposit in the periosteum at each of the sites corresponding to them. All the organs with the exception of the liver were fairly healthy. The liver, which was of normal size and weight, exhibited several depressed scars on both the parietal and visceral surfaces of the lobes. These scars were typical of old gummata, being composed of white fibrous tissue, strands of which radiated out into the liver substance in star-like fashion. On section the liver substance showed an excess of this tissue throughout.

The interesting thing about the liver, however, was that its two principal lobes were separate. Anatomically the organ was complete, all the lobes being represented, but whereas the three small lobes had fused with the right to form one large lobe, the right and left lobes had failed to fuse. The two lobes were united by a bridge composed of the following elements: (1) Branches of the hepatic artery and portal vein; (2) left branch of the hepatic duct; (3) branch of the hepatic vein to the vena cava; (4) nerves, lymphatics, and fibrous tissue. The falciform ligament having attachment to both lobes also acted as a bond of union between them. The artery before entering the substance of the left lobe, which it did through a sort of hilum, split up into two or three smaller branches. At the same spot the branch of the portal vein entered and the branches of the hepatic vein and duct made their exit. The duct carrying the bile from the left lobe was about 2 inches long and about ¼th inch in diameter, and it joined the duct from the right lobe soon after the latter emerged from the transverse fissure. (See figure.) The gall-bladder was of normal size, and attached to the right lobe at the transverse fissure.

This condition of the liver is instructive from a developmental point of view. The organ,[1] we are told, arises from a bud situated in the septum transversum at the junction of the fore-gut and yolk-sac. This part of the gut at a later period of development becomes the second stage of the duodenum. It is at first a hollow diverticulum surrounded by a mass of mesoblastic cells, which give origin to vessels, capsule, and connective tissue of the liver. From it arise right and left solid processes of hypoblastic cells to form the right and left lobes of the liver. These grow and spread, and the other lobes typical of the mammalian liver are differentiated. In the human liver the middle lobe fuses with the right at an early period, and a little later the right and left lobes also fuse. In the fully developed organ the fissures denote the lines of fusion. In the above case the small lobes had fused with the right lobe, but the right and left lobes had failed to do so, the line of separation being the longitudinal fissure. This fact would tend to confirm the theory that the liver does arise from two separate processes of hypoblast, and that each process possesses its own blood-vessels and bile-duct.

Clinically the case is interesting as it demonstrates the possibility of a parasyphilitic condition co-existing with a syphilitic in the same patient. At the same time, it proves the value of iodide of potassium in the treatment of gummata, but its absolute failure to arrest the progress of, far less cure, the nerve lesion.

We have to record our thanks to Dr. A. E. Chilcott, medical superintendent of St. Pancras Infirmary (North), for his kindness in allowing us to publish this case, and also to Mr. J. F. Turner for taking and developing photograph.

CONGENITAL ABSENCE OF THE GALL-BLADDER,

ASSOCIATED WITH IMPERFECT DEVELOPMENT OF THE PANCREAS, AND IMPERFORATE ANUS.

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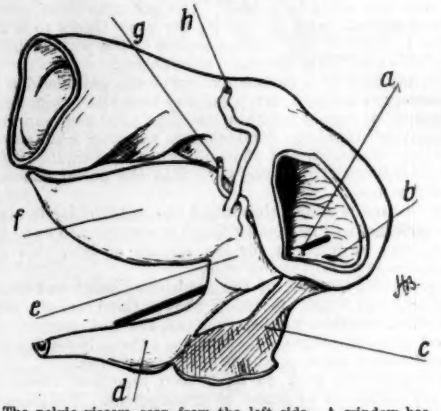
DEMONSTRATOR OF ANATOMY, ST. BARTHOLOMEW'S HOSPITAL MEDICAL SCHOOL.

THE subject of this communication was a male infant, of whose history only this much is known—the child was born with the condition of imperforate anus, for which an operation was performed; the patient survived the operation only a short time.

At the necropsy the whole of the abdominal and pelvic viscera were removed; these show the following peculiarities. The rectum terminates suddenly in a dilatation opposite the apex of the prostate gland. (Fig. 1). The skin, in the position where the anus should be, shows a shallow, irregular depression, but it cannot now be said whether this preceded, or was caused by, the operation. Dense fibrous tissue connects the deep surface of the skin with the termination of the bowel, and the mucous membrane of the latter shows a slight dimple in this position, but no opening; apparently the bowel was not reached at the operation. There is a communication between the rectum, a quarter of an inch above its termination, and the distal end of the prostatic urethra; the diameter of the opening is 2 mm. The remainder of the urethra is natural. The bladder, ureters, and kidneys are natural, and the urachus is closed.

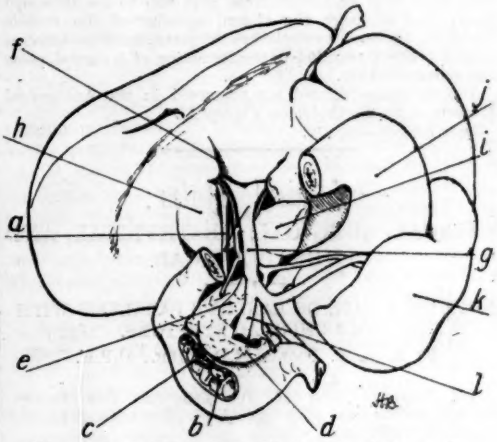
FIG. 1.



The pelvic viscera, seen from the left side. A window has been cut in the side of the rectum. A, Rod protruding from aperture of communication between rectum and urethra; the other end of the rod is seen projecting from the prostatic urethra. B, Dimple in rectal mucous membrane opposite point of attachment of C, Fibrous tissue connecting blind end of rectum with skin of perineum. D, Bulb of urethra. E, Prostate. F, Bladder. G, Vas deferens. H Ureter.

The gall-bladder is absent (Fig. 2), and there is no trace of a cystic duct; there is, however, a rudiment of the fissure for the gall-bladder, immediately in front of the right end of the portal fissure of the liver; the quadrate lobe is thus imperfectly marked off from the remainder of the right lobe, while to the left it is connected with the left lobe by a well-marked pons hepatis, covering in the upper part of the umbilical fissure.

FIG. 2.



The under aspect of the liver, with the adjacent viscera. A window has been cut in the wall of the duodenum. A, Bile-duct, into which a bristle has been passed. B, Bristle protruding from opening of bile-duct in duodenum. C, Papilla and aperture of accessory pancreatic duct. D, Head of pancreas. E, Neck of pancreas. F, Rudiment of fissure for gall-bladder. G, Portal vein. H, Caudate lobe of liver. I, Spigelian lobe of liver. J, Stomach, part of the pyloric portion of which has been removed. K, Spleen. L, Superior mesenteric vessels.

The bile-duct, formed at the right extremity of the portal fissure by the union of the two hepatic ducts, occupies its usual position in the free edge of the gastro-hepatic omentum; the portal vein, however, here lies in front of the hepatic artery and its terminal branches,

[1] Human Embryology and Morphology, by Keith.

instead of, as is usual, behind both artery and duct. The bile-duct, traced downwards behind the first part of the duodenum and the head of the pancreas, remains of the same calibre throughout; it joins the pancreatic duct, and the two open into the duodenum upon a well-marked papilla. An unusually large papilla marks the opening into the duodenum of the accessory pancreatic duct, into which a bristle can easily be passed. The pancreas itself presents a well-marked head and neck; the neck tapers to a blunt point in front of the commencement of the portal vein, and the body and tail of the gland are wanting.

In any case of apparent absence of the gall-bladder it is necessary to exclude the possibility that the organ may be present, but enclosed within the liver substance—an intra-hepatic gall-bladder. Sections were therefore made through the liver substance, and show no sign of the organ. Microscopic sections of the liver show that the portal canals are well developed.

It is usually stated that when the gall-bladder is absent the bile-duct will be found dilated or multiple, so as to form some sort of reservoir for the storage of bile. No such dilatation is present in this case.

As regards the rest of the alimentary canal and its connexions, the small intestine shows three small, easily reducible intussusceptions, such as are not uncommonly found at post-mortem examinations; there is no Meckel's diverticulum; the appendix is of the fœtal type.

Malformations such as have been described above are usually attributed to arrest of development. The pancreas is said to be developed from two buds from the duodenum, ventral and dorsal; the *ventral* bud arises in common with the outgrowth which forms the bile-ducts, gall-bladder and liver; of the pancreas it forms only the lower part of the head, all the rest of the gland being developed from the *dorsal* bud. Both buds were formed in this case—their connexions with the duodenum are plainly visible—and both are faulty in their development: the ventral, in not giving off the cystic duct and gall-bladder; the dorsal, in forming no body or tail to the pancreas.

Doubtless arrest of development affected here both the outgrowths from the duodenum and also the cloaca, leading to a persistence of the cloacal orifice of the rectum; but the cause of such arrest is unknown. One cannot assume that a lack of energy on the part of the embryonal tissues played a part in its causation, for it must be noted that the ventral diverticulum from the duodenum, having omitted to form a gall-bladder, nevertheless gave rise to a well-formed liver; and although the cloacal opening of the rectum remained unclosed, nevertheless the parts about the external cloacal orifice proceeded to the formation of a normal penis and spongy urethra.

The specimens figured are preserved in the Anatomical Museum of St. Bartholomew's Hospital.

Upper Wimpole-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF LANDRY'S PARALYSIS WITH SOME UNUSUAL SYMPTOMS.

BY E. A. B. POOLE, M.D. DURH., D.P.H.

THE following case of this somewhat rare disease, although for the most part typical, presents unusual mental symptoms.

The patient was a married woman, aged 56, and I was called to see her on July 4th. The history was that she was quite well three weeks before, although she was easily fatigued, and her "feet went to sleep." About that time she had some feeling of lassitude and more or less general weakness; she remarked that a short walk tired her and induced undue and unusual fatigue, and later that her feet and knees gave way. She added that her extremities were livid and cold, and she continually wanted them rubbed and hot clothing applied. After a few days of these premonitory symptoms, walking and standing became impossible, and, together with some indefinite "rheumatic" pains, confined her to bed about ten days before I first saw her. She informed me that all her life she had been quite healthy; had had six children, and one miscarriage 14 years ago, about which time her husband, who was then a painter, suffered from an attack of colic, but that she had had no serious illness in past years or latterly. She was practically a total abstainer from alcohol, and there was no evidence of any other toxæmia.

On examination I found marked loss of power in both legs; she could certainly move them, but not against any resistance. The patellar reflexes were lost, but she had no electrical changes or muscular wasting nor alteration in cutaneous sensation. There was some loss of power in both hands and arms, greater on the right, on which, too, she had dropped-wrist, and she complained of difficulty in deglutition. The temperature was normal; she had no trophic lesions; the sphincters were not involved nor the calves tender.

During the night of July 4th her relatives noticed psychical disturbances, which persisted more or less constantly till she died. She complained that she saw bugs on the walls, that a cat was in the room, and that a baby was sitting on her feet, and later that her husband was in bed with her and that people were knocking at the door. On July 5th the loss of power in her hands and arms had increased, as, too, had the difficulty in swallowing. As the patient was very fat I could not make out that the spleen was at all enlarged. On my inquiring with regard to the mental symptoms, she readily corrected her false impressions, and stated that she was quite satisfied that they were imaginary.

On the following day the loss of power in her limbs had increased, and there was dropped-wrist in the left arm too. She had some difficulty in respiration and had been able to take scarcely any food. The psychical disturbance continued, although she was still prepared to admit her visions were imaginary. The respiratory embarrassment rapidly increased, and she died suddenly early in the morning of July 7th. For about ten hours she had increasing difficulty in speaking, but had no strabismus, ptosis, irregularity of the pupils, or other ocular symptoms.

Liverpool.

NOTE OF A CASE IN WHICH OCCURRED SIX ATTACKS OF GONORRHŒAL IRITIS WITHIN FOUR YEARS.

BY E. KENNETH CAMPBELL, M.B. EDIN., F.R.C.S. ENG.

IT is generally admitted that by far the largest number of cases of iritis arise in connexion with syphilis and gonorrhœa. Furthermore, that the syphilitic variety occurs at an early period of the disease (first six months) and does not tend to recur, while the gonorrhœal variety occurs especially in those cases which exhibit gonorrhœal rheumatism, and does tend to recur.

The patient, a man aged 30, contracted gonorrhœa four years ago. It was treated by injections, and ran its usual course. Neither then nor at any subsequent period has he ever had "rheumatism." He has been closely questioned about this, and is very emphatic in his denial. The first attack of iritis came on four months after the discharge had ceased. Since then he has had five recurrences, making six attacks in all. He stoutly denies that he has ever had more than the one attack of urethritis, and is confident in his assertion that at no time has there ever been any gleety discharge.

The gonococcus is *par excellence* a pus-producing organism. Gonorrhœal "rheumatism" and gonorrhœal iritis are probably not due to the gonococcus, for pus is but very seldom found in connexion with either of them. Invariably (so far as my own experience goes) when these complications arise "injections" have been used in the treatment of the original urethritis, and the explanation is simple. The urethral epithelium is a very delicate one, consisting mainly of a single layer of cells. By the introduction of the nozzle of the syringe "Nature's first line of defence" is broken down, thus permitting of a mixed infection. The moral is that no case of gonorrhœa should ever be treated by "injections," for in trying to kill the gonococcus we really kill, or considerably lower the vitality of, the cells which are striving hard to phagocyte the invading organisms.

Wimpole-street, W.

Reviews and Notices of Books.

Les Velus, Contribution à l'Etude des Variations par Excès du Système Pileux de l'Homme. Par M. le Prof. A.-F. LE DOUBLE et M. le Dr. FRANCOIS HOUSSAY. Paris: Vigot Frères. 1912. Pp. 501. Price 15 francs.

Professor le Double and Dr. Houssay are to be congratulated on their joint work, for it is written with the sound observation united to clearness of style which frequently are the distinguishing marks of French scientific treatises.

Hypertrichosis, not due to traumatism or to any disease of the skin, is, in their opinion, a reversionary condition, "*une variation reversive, théromorphique, atavique ou d'héritage.*" They are, however, not irrevocably committed to their opinion, for they modestly state: "If we have erred it is in all good faith, and we will gladly accept any more plausible interpretation of the condition which anyone may bring forward." The first part of the book, which takes up only four pages, treats of hypertrichosis of mucous membranes—e.g., trichiasis and the presence of hairs in the urinary passages. This is a well-known condition and one generally due, as Professor le Double and Dr. Houssay point out, to the presence of a vesical dermoid cyst. We do not think, however, that they are correct in attributing to Hippocrates a reference to hairs in the urinary tract, for on looking up the passage (Aphorisms, Sect. IV., aphorism 76) to which they refer in a footnote, we find that Hippocrates said not that hairs were discharged from the bladder, but that bodies like hairs were so. Ὁκόσοισιν ..... σαρκία μικρὰ ἢ ὥσπερ τρίχες ξυνεξέρχονται, "little fleshy bodies or bodies like hairs." A case of hairs growing in the bladder was reported in our columns in 1889.[1] In an epitome of the Philosophical Transactions to the end of the year 1700, edited by John Lowthorp and published in 1722, Vol. III., p. 164, is an account by Dr. John Wallace of "Sir William Elliot's pissing hair, from Sir Archibald Stevenson and Dr. Pitcairn, his physicians." After his death Dr. Wallace saw a stone which had been taken out of the bladder. It was as big as a goose egg, covered with a mortar-like scurf, and "in the chinks of this scurf there were some hairs grown out." During his lifetime he passed a number of hairs, some of them of an extraordinary length.

The remainder of the work is taken up with hypertrichosis, local or general, and the authors have collected a large number of cases of this condition. There are many instances of women the hair of whose head has reached a remarkable length, one of the most noted being Madame Grand, who eventually became the wife of Talleyrand, and of whom a story which would have appealed to Brantome is related by the Comtesse de Boigne in her Memoirs. Madame Grand's hair when let down reached to the ground. The many cases of bearded women are fully dealt with, as well as instances of hypertrichosis of the abdominal wall and the pubic region. Of instances where more than one member of a family is affected with hypertrichosis, accounts are given of the family of Ambras who came from the Canaries in the sixteenth century to the Chateau of Ambras, near Innspruck. The father, three daughters, and a son all had faces completely covered with hair, the father, in addition, being hairy all over. To come nearer our own times, there is the well-known family of Schevémaong in Burma, whose daughter Maphoon, together with at least one of her children, showed the same hairiness as Schevémaong himself. Maphoon and a child have been introduced to our readers already, for in our issue of March 29th, 1902, we reproduced photographs showing her and her son in infancy, as well as the same son grown up. The Burmese family were notable in that they also exhibited the deficiency in molars which is known to accompany hypertrichosis in many cases.

Professor le Double and Dr. Houssay pass in review the various theories as to the origin of hypertrichosis—namely, that hairy children were the offspring of the commerce of a woman with a devil or a beast; that they were the result of a "maternal impression"; that the condition is due to some physiological or pathological condition; and, finally, that it is an atavistic reversion, and this last theory they support.

There is an interesting chapter upon the relations of hypertrichosis to muscular strength, sexual conditions and dentition, and the work ends with an account of hypertrichosis in the arts, a subject on which alone a whole book might be written. In reference to the relation between hypertrichosis and muscular power, it is noteworthy that there are many statues of Hercules representing him as hairy and one of his special epithets is μελάμπυγος. Another instance of hypertrichosis in art and hagiology is the saint known as Liberata, Wildegefort, and, we may add, in England, Uncumber. Her history is curious: she was the daughter of the King of Portugal who wished to marry her to a pagan. Being herself a Christian she prayed that she might be delivered from the marriage, and in response to her prayers she grew a beard in one night which effectually choked off her admirer. Her father on learning this was so angry that he crucified her. Since then she has been the patron of those who wish to be freed from husbands or lovers, and hence her Latin and English name. But the origin of the legend is that it was invented to explain the primitive pictures and images of Christ on the cross, clothed in a long garment down to the feet, such as may be seen in Spain to this day and are and were common in the Eastern Church—of course, as pictures only.

The following passages from a fourth century writer are of interest as supplementing the information collected by Professor le Double and Dr. Houssay. In reference to the question of hair in general, and as to what was thought of it in early times, Dio Chrysostom (50 A.D.) wrote a discourse "In Praise of Hair," which has been quoted (it is otherwise lost) by Synesius, 370 A.D., in his somewhat burlesque "In Praise of Baldness." Dio had pointed out that Homer in many passages extolled his heroes Menelaus, Achilles, Odysseus, and Hector for the beauty of their hair. Synesius argues that Achilles despised his hair, for he cut it off and strewed it on the body of Patroclus. But interspersed among his other passages of solemn fooling is the following: that hunters know by experience that the less hairy a dog is the better he is in sport, and Synesius, though a bishop, was a keen sportsman. Here is the passage as given in the Latin translation of Petavius: "Quod siquid dicendum est, quod venatoribus ex usu sit (quibus cum nobis amicitia est) et illorum artis quoque peritissimi sunt canes ii, qui auribus, et ventre glabri sunt, villosi contra attoniti omnes, temerarii, ac venatione interdicti meliores sunt." Elsewhere he argues that man is the most rational and most naked of animals, whereas sheep, which everyone will allow are the most stupid (stolidissimæ) of animals, not only have hair, but instead of it being separate hairs, their coat is thick and matted.

Professor le Double and Dr. Houssay are to be congratulated on having given their readers a most interesting and informing book.

[1] THE LANCET, Sept. 14th, 1889, p. 538.

Quain's Elements of Anatomy. Eleventh edition. Edited by Professor EDWARD ALBERT SCHÄFER, Professor JOHNSON SYMINGTON, and Professor THOMAS HASTIE BRYCE. Vol. II., Part 1, *Text-book of Microscopic Anatomy.* By E. A. SCHÄFER, LL.D., Sc.D., M.D., F.R.S., Professor of Physiology and Histology in the University of Edinburgh. Illustrated by 1001 engravings and 21 coloured plates. London: Longmans, Green, and Co. 1912. Pp. 793. Price 25*s.* net.

Professor Schäfer is to be congratulated on the issue of what is so far the best volume of the eleventh edition of "Quain's Anatomy," and the best work in the English language upon microscopic anatomy. In this volume many of the good features of the tenth edition have been retained to a far greater extent than in some of the other volumes of this new issue; and one feature we would especially instance is the retaining of the brief summaries of the literature at the ends of the chapters. It is a matter for regret that in Vol. I. of the eleventh edition this useful summary was not continued, and it somewhat detracts from the value of the new issue as a work of reference that some volumes include a bibliography while some do not. Even in the present volume the literature is given in very uneven fashion, for while it is fairly complete for some systems it is remarkably scant for others. Thus, for the male organs of generation an ample bibliography is given, but, with the exception of the ovary, the female genital organs are left without any summary of the literature. The great majority of the illustrations are taken from standard monographs and all are excellently reproduced, and the text, with a few trivial exceptions, is admirably clear and full.

Only one aspect of the work calls for criticism, and this is that by reason of its very excellence it has greatly increased in bulk, and costs just twice as much as Vol. I., Part 2, of the previous edition. That is a factor for very serious consideration. Such criticism does not apply to the merits of the work, but rather to the policy of the present editors, a policy that will certainly not recommend itself to all teachers of anatomy. There are many, and very important, reasons why the medical student should not be encouraged in the idea that the microscopic structure of the body is a thing so far apart from gross anatomy as to be confined in a large and expensive volume separated from the descriptions of the naked-eye anatomy of the organs which he is studying. Most students have the utmost difficulty in relating the details seen in sections under the microscope to the naked-eye appearances they are familiar with in the body. The present methods of teaching histology apart from gross anatomy have led to the ridiculous result that the student is often familiar with the microscopic appearance of, say, a lobule of the liver or the lung, but how much of this lobule he can see on the organ, or indeed if he can see it at all, are things he is often quite ignorant of. Again, it is only by a Herculean effort that the medical student ever manages to fit the vast details of the microscopic anatomy of the organ of hearing into the narrow limits of the organ which he dissects, and many never succeed in this feat. It is the fear that "Quain's Anatomy" is fostering and extending these difficulties at a time when reform is necessary and possible that makes us pause after giving full praise to this very excellent volume.

Fortschritte der Naturwissenschaftlichen Forschung. Herausgegeben von Professor Dr. EMIL ABDERHALDEN, Halle a.S. Vierter Band. Mit 110 Textabbildungen. Berlin: Urban und Schwarzenberg. 1912. Pp. 299. Paper, 15 marks; bound 17 marks.

AMONG the articles in this fourth volume of the series is one from the pen of an accomplished and original worker, Professor Heilbronner, of Utrecht, on the present-day position of the aphasia question.

Professor Heilbronner is well known for his numerous contributions to this difficult subject, which is to-day as provocative of discussion and of differences of opinion as at any time during the last half century. It is, indeed, about 50 years since a new epoch in cerebral physiology was entered on by Broca's famous discovery, yet the perusal of the review before us is almost depressing when we think how comparatively slight have been the advances towards real unanimity in the matter of motor and sensory aphasia. Antagonists of the classical view are actively engaged in its demolition, while its supporters are equally zealous in buttressing it with clinical and pathological evidence in never-ending variety. The literature on the subject is truly enormous. To pick one's way amid conflicting reports and hypotheses is arduous enough, and one is the more grateful for such a bird's-eye view as Dr. Heilbronner here presents to us of the whole field. He points out that the question of aphasia may be approached from two directions: there is first the practical question of the diagnosis and exact anatomical localisation of aphasic disturbances, and there is also the more interesting, if less understood, problem of the light which aphasic phenomena may shed on the relation between psychical and physical processes in the cerebrum. On the whole, the position adopted by the author is conservative: he holds to the two main groups of Broca's aphasia and Wernicke's aphasia, and while emphasising the necessity for minute and painstaking pathological verification of clinically observed phenomena, he enters a plea for a wider view of the disturbances of aphasia, as constituting only a part of agnostic or apraxic defects. The reader will find this section of the article of great suggestiveness, for Dr. Heilbronner brings aphasic and apraxic symptoms together, and elaborates their relations along original lines.

The neurologist and physician will find this scholarly essay readable, up to date, and stimulating.

The Physiology of Protein Metabolism. By E. P. CATHCART, M.D., D.Sc. Glasg., Grieve Lecturer on Chemical Physiology in the University of Glasgow. London: Longmans, Green, and Co. 1912. Pp. 142. Price 4*s.* 6*d.* net.

THE amount of work that has been done on the digestion and assimilation of proteins is enormous, more especially since the advent of the new type of bio-chemist, with his researches into the constitution of the protein molecules. Some idea of the extent of this work may be gathered from the fact that the bibliography alone in the monograph before us occupies about 20 pages. It contains the names of the authors of the papers arranged in alphabetical order. To Abderhalden and his co-workers are credited 50 papers. The total number of papers cited is 430, but few, indeed very few, are by English investigators.

The present monograph is not intended to cover the whole literature of protein metabolism. In it are discussed the most important results published during the last decade and their bearing on the work of earlier investigators. Many of the recent observers have devoted their attention to the study of the metabolism of particular constituents of the protein molecule. The author thinks a truer picture of the real course of protein metabolism can be drawn by not laying undue stress on the fate of these constituents. So strenuous and so successful a worker as Voigt himself—after 40 years of labour in this field—when discussing the cause of metabolism, could say no more than that "the unknown causes of metabolism are found in the cells of the organism. The mass of these cells and their power to decompose materials determines the metabolism"—just, in fact, as they regulate their own respiratory movements. The scope of the monograph will be fully understood by

giving the titles of the chapters: Digestion and Absorption of Proteins (pp. 4–15), Protein Regeneration (pp. 16–34), Feeding Experiments with Abiuret Products of Digestion (pp. 35–48), Deaminisation (pp. 49–55), Influence of Food on the Composition of the Tissues (pp. 56–65), Protein Requirements (pp. 66–89), Theories of Protein Metabolism (pp. 90–95), Starvation (pp. 96–108), Work (pp. 109–121).

We know something of the first products of protein metabolism and of the end products in the urine, but of the intermediate stages in the wall of the gut during absorption and the subsequent phases really very little is definitely known. There are plenty of assumptions, but not much convincing proof. As to gastric absorption, the author concludes that under normal conditions the amount of protein products must be small, while as to intestinal absorption, the material absorbed is for the most part in the form of abiuret products—i.e., those that do not yield the biuret reaction, of which the greater part consists of simple amino-acids. There is, he thinks, no very decisive evidence in favour of the presence of proteose or peptone in the blood; indeed, there is no direct evidence which definitely determines the form in which the protein digestion products reach and travel in the blood. As regards the protein requirements of an organism, it is, perhaps, not so much the actual quantity of the proteins supplied in the food which is of importance. The synthesis of protein in the body is a function of each individual cell. It is important to note that an animal under certain conditions can be kept in life by abiuret products, and may even rise in weight. The value of asparagine and other amine bodies is discussed. Much stress is laid on the deaminisation of the cells as a fundamental one in the metabolism of proteins. As to protein requirements, the diet recommended by Chittenden is held to be absolutely at fault in certain respects. The author presents a careful exposition of the metabolism during muscular work, and also of the leading metabolic features during a prolonged period of starvation while no muscular work is undertaken. The main interest of starvation studies, when the organism is living on a purely endogenous supply of protein, lies in the partition of the nitrogenous constituents.

This is a most excellent up-to-date monograph.

Text-book of Hygiene for Teachers. By ROBERT A. LYSTER, M.D. Birm., B.Sc. Lond., D.P.H., County Medical Officer of Health for Hampshire, &c. London: University Tutorial Press, Limited (W. B. Clive). 1912. Pp. 496. Price 4*s.* 6*d.*

THIS volume represents a re-arrangement and revision to date of the same author's "School Hygiene," which was published in the early days of systematic medical inspection of school children. It is in three parts, dealing respectively with the school, the scholar, and medical supervision of school life. The second of these parts is arranged so as to give elementary physiological facts regarding different organs and functions, followed in each case by an account of the morbid conditions which may be produced by defective school environment. A chapter on "How to Take Care of the Baby," somewhat foreign to the rest of the work, is introduced "by request."

The arrangement and classification are good. Dr. Lyster's selection of material is judicious and his style terse and clear. Although the book appears primarily to be intended for the instruction of teachers, it is valuable to the medical reader as an excellent summary of the matters with which a school medical officer has to deal. Dr. Lyster has a large personal experience of the subjects on which he writes, and makes many useful practical suggestions and criticisms. His observations on school-desks and the teaching of handwriting are, for example, particularly sound, as is his protest against the common eye-torture of map-reading and map-drawing as frequently taught. He insists upon the importance of ample cubic space and adequate natural ventilation of classrooms, and considers that the adoption of the maximum of 0·13 per cent. of carbon dioxide, regarded as permissible by Carnelly, Haldane, and Anderson, would "continue to inflict irreparable injury upon the children." In future it is hoped that a special room will be provided in all elementary schools for medical inspection, and Dr. Lyster thinks that this should be made sufficiently large to serve also as the school dining-room for children for whom meals are provided. In school medical inspection he deprecates needless attention to the exact condition of the individual child when once an abnormality has been detected. The school medical officer should be regarded chiefly as a means of separating the normal from the abnormal, and of roughly sorting the latter, while bringing about improvements in the conditions of school life which prevent abnormalities occurring or being increased. Detailed examination and treatment should be left to the general practitioner or to the special institutions appropriate for the case. Occasionally the author's didactic method leads him to emphatic statements on matters in which there is still room for difference of expert opinion. Minorities deserve consideration, and we have some doubt of the wisdom of impressing on teachers that "the essential idea should be that *all* must play," or whether it is really the case that "the most powerful minds will be found among those who do not neglect their muscular development." Tooth-brush drill is good, but it may be questioned whether it is "the very best and most beneficial drill that has ever been introduced into schools." Emphasis, however, is not out of place in a teacher's manual.

We cordially recommend the book to the large public, both medical and lay, which is now concerned with the problems of school hygiene.

Handbuch der Vergleichenden Physiologie. Herausgegeben von HANS WINTERSTEIN in Rostock. Zwanzigste Lieferung; Bogen 31–39 (pp. 481–624); price 5 marks. Einundzwanzigste Lieferung: Bogen 40–53 (pp. 625–840); price 8 marks. (With 64 figures in the text and three plates.) Band IV.: *Physiologie der Reizaufnahme, Reizleitung, und Reizbeantwortung.* Jena: Gustav Fischer. 1912.

FOR once two parts that follow in numerical succession treat of practically one subject, and therefore we may deal with Parts 20 and 21 together.

Professor Jacques Loeb finishes his treatise on Tropisms. To those who are already familiar with Loeb's work this will serve as a handy conspectus of his contributions to this subject. To a question which is much discussed in Germany—viz., "the lower senses"—Dr. S. Baglioni, of Rome, devotes about 30 pages. By this term is usually meant such senses as are not provided with a complex receptive apparatus such as the ear or eye. What, in fact, is dealt with apart altogether from higher and lower senses are those sensations mediated through the skin and the senses to which the term "chemical senses" is sometimes applied—i.e., taste and smell. We think that in as far as the author deals with a vast subject both from a morphological and physiological point of view in all classes of animals, he would have done wisely to introduce some illustrations in his text, more especially as it is a subject which admits of the reproduction of exquisitely beautiful, not to say suggestive, end-terminals. By way of compensation the "Literatur" is comprehensive, so that the reader can get at what he is not directly provided with. To appreciate fully, however, the author's text one must be familiar with more than superficial details in zoology.

The bulk of these two parts, nearly 300 closely printed pages, however, is devoted to "Gesichtssinn," or the sense

of sight, which has been placed in the very capable hands of C. Hess, of Würzburg, than whom no better selection could have been made. To begin with, the introduction is physiological and not morphological, and the higher animals take the first place, while the literature is not arranged alphabetically as are other parts of the "Handbuch," but chronologically. Perhaps the zoologists will be especially interested in the author's observations on the colour sense of birds and the adaptive changes in the eye of the bird as represented by the common barn-door fowl. Indeed, the author not only writes a monograph, but he incorporates his original observations on such subjects as size of pupil in birds, and the significance of the coloured oil globules in the retina of certain sauropsida. With equal interest physiologist and zoologist alike will read what the author has to say on reptilian, amphibian, and piscine eyes—not so much in their morphological and histological details as in their physiological activities and adaptation. Sight in invertebrates then holds the field in a rather stout "Lieferung" of over 200 pages. Lubbock's work in the so-called colour sense of bees is so well known in this country that we commend to zoologists the author's interesting views on this subject (pp. 661–64). An especially interesting chapter is devoted to vision in the cephalopods. Then is passed in review the vision of worms and other lowly creatures until the much-vexed question of observations on unicellular organisms is reached, which those interested must read in the original. The second part deals, in a graphic and well-illustrated manner, with dioptrics of the visual organs of vertebrates—some of the illustrative woodcuts to show the morphology and structure of the eye are taken from Hess, but many are original. Especially interesting is the account of the visible effects produced by light on the eye. The third part deals with accommodation, from fishes upwards. That obscure organ, the pecten, comes in for full consideration.

Part 21 costs 8*s.*, and is well worth it. There are some plates, which are well produced. The author, Dr. Hess, has done his work out of a full knowledge of his subject. His compendium—for it is little less—is a quarry into which physiologists and zoologists alike should dig, and wherein they will find the best *résumé* of vision and visual organs yet laid before students of this subject.

LIBRARY TABLE.

The Human Eye: Diagrams and Descriptions Illustrating its Structures, Functions, Diseases, and Attachments, with Special Reference to it as an Optical Instrument. By J. GRAY-KEITH. London: Sampson Low, Marston, and Co., Limited. 1912. 20 sheets. Price 21*s.* net.—*Visual Optics and Sight Testing.* By LIONEL LAURANCE. Published by the Author, 21, John-street, Bedford-row, London, W.C. 1912. Pp. 396.—The work on the human eye consists of 20 plates of coloured diagrams of the eye and surrounding structures, with descriptive letterpress. It is written by an optician, presumably for opticians, and we are surprised that so inaccurate a work should have been sent to a medical journal for review. In the first plate the swelling of the optic papilla is represented so large that the fovea is situated on its edge. In the third plate an artery is represented running through the vitreous to the back of the lens; it is, of course, the hyaloid artery, but there is nothing to indicate that the eye is a fœtal or abnormal adult eye. In the tenth plate the choroid extends forwards to the root of the iris and the ciliary processes are represented as bands attached to the anterior part of the lens. The fifteenth plate is a ludicrously inaccurate representation of the brain and cranial nerves. In the nineteenth plate the emmetropic, hypermetropic, and myopic eyes are almost the same size, except that the myopic eye has a very deep anterior chamber. These are but a few of the glaring errors which strike one on a casual examination. It is unnecessary to enter into more detailed criticism.—"Visual Optics and Sight Testing" is another book written by an optician for opticians. It is a compilation, but as such is quite excellent. Mr. Laurance speaks authoritatively when dealing with the more purely optical portions of the subject, and ophthalmologists will find in the book a useful and concise summary of the mathematical principles of visual optics. Indeed, in this part of the subject many interesting points are dealt with which are not commonly mentioned in ophthalmic text-books. Mr. Laurance's scheme is ambitious and involves a discussion of the physiology of vision and even some indications of pathology. There is evidence to show that he has studied these aspects carefully, and the accuracy he has attained is really remarkable if we assume, what we believe we can assume from certain indications, that he has had no regular medical training. It is a disputed question how far opticians should be instructed in the physiological aspects of vision. There are those who think, with Pope, that a little learning is a dangerous thing. On the other hand, the avidity of the optician for knowledge cannot, and need not, be controlled if it is associated with a corresponding appreciation of the limitations of his acquirements. For such Mr. Laurance's book is probably the best guide available, and we think he strikes the right note when he says that "No apologies are needed for mentioning some indications of pathological conditions, since a person with defective sight may go to the optician when he should go to the oculist." There is much virtue in the word "should," and though we think that opticians should not perform sight testing themselves at all, we cannot condemn them for taking a wide and intelligent interest in the science of ophthalmology which their trade subserves. That opticians will find the book valuable we have no doubt, and there are few ophthalmologists who will not benefit by its perusal.

The New Physiology in Surgical and General Practice. By A. RENDLE SHORT, M.D., B.S., B.Sc. Lond., F.R.C.S. Eng., Honorary Surgical Registrar, Bristol Royal Infirmary; Senior Demonstrator of Physiology, University of Bristol. Second edition, revised and enlarged. Bristol: John Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co. 1912. Pp. 244. Price 5*s.* net.—In reviewing the first edition of this work in THE LANCET of June 8th last we expressed the hope that it might appear in a second edition, in which yet other applications of recent physiology to surgical problems might be described. This hope has already been fulfilled, the first edition having been exhausted within a few months of its issue. Several chapters have been considerably extended in this edition and a new one has been added on the growth of bone. This subject, as well as those of the uses and dangers of saline infusions and on the relation of carbon dioxide to shock, which are now dealt with, are described by the author as of "revolutionary importance." Other subjects that are treated of in this new edition are the gastric secretion in man, the pituitary gland and the uses of its extract, sensory localisation in the brain, the innervation of the pleura and the referred pain of pleuritis, and fibrinolysis. It is unnecessary to repeat the commendation so recently bestowed on the work, for the appearance of this new edition amply justifies our verdict on the first edition.

ERRATUM.—Our attention has been called to the fact that Major Greig's work on Epidemic Dropsy in Calcutta is No. 49 of the Official Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India, not No. 59, as stated in THE LANCET of July 27th, 1912, p. 241.

THE BRITISH MEDICAL ASSOCIATION.

EIGHTIETH ANNUAL MEETING IN LIVERPOOL.

Mr. F. W. Lowndes, of Liverpool, writes to us in connexion with the recent meeting of the British Medical Association in the city where his long official and professional work has earned him universal regard:—A remarkable feature in the history of Liverpool is its rapid rise from a poor fishing village in the middle of the seventeenth century, with one church—the Chapel of Our Lady and St. Nicholas (the patron saint of all sailors)—to its present position with a population of three-quarters of a million. Towards the end of the eighteenth century it had a population of 30,000 and five churches; it was a town of shipowners and seamen, merchants, brokers, their clerks, and warehousemen. It had suffered much from malignant plague, or black death, which more than once decimated the population and caused the formation of a burial ground outside St. Nicholas's Church in place of that at Walton Parish Church, three miles distant. In the eighteenth century there were physicians and surgeons of mark, notably Matthew Dobson, Houlston, Currie, Henry Park, and Alanson. The first infirmary was opened in 1749 with a seamen's hospital. Dr. Matthew Dobson's name has been quite recently quoted for his epoch-marking paper, as Dr. Garrod called it, on sugar in the urine of diabetics. Henry Park died in 1832, and the first meeting in Liverpool of the Provincial Medical Association was held very soon after, the President making feeling allusion to Park and others resting in the tomb. The late Mr. Reginald Harrison, in his address on Surgery at the last meeting of the British Medical Association in Liverpool,[1] gave the following quotation from an article in the *Edinburgh Review*, October, 1872: "In the latter portion of the last (18th) century when a vigorous flash of originality seemed to light up the progress of surgery, Park, of the Liverpool Hospital (Infirmary), may be said to have completed the first act of conservative surgery. His patient, a sailor, to whom the loss of a foot and leg would have been tantamount to the loss of his means of getting bread, determined him to make the experiment of simply excising the diseased parts—the knee-joint—and retaining the foot and leg. This he did so successfully that, to use his own words, the patient several years after the operation made several voyages to sea in which he was able to go aloft with considerable agility and to perform all the duties of a seaman, that he was twice shipwrecked and suffered great hardship without feeling any further complaint in that limb. This was a crucial test of success that should have stamped the operation as one of the greatest surgical triumphs of the time. But, like so many other great strides taken in that age of extreme vivification, it was in advance of its fellows and was destined to be arrested for the better part of another half century." One reason, says Mr. Lowndes, for this want of appreciation was Henry Park's modest and retiring disposition, also his hatred of pen, ink, and paper. There is such a thing as being before the time, but being behind the time is worse, and Park, though somewhat unappreciated in his day, now shares in the fame that has come alike to his city and his profession. Park's body was buried in St. James's cemetery, which is situated near Rodney-street, in which street many physicians and surgeons reside, and near which is the church dedicated to St. Luke. The newly rising cathedral is close to St. James's cemetery.

[1] THE LANCET, Feb. 24th, 1912, p. 483.

THE SECTIONS.

MEDICINE.

THURSDAY, JULY 25TH.

President: Professor T. R. GLYNN (Liverpool).

Sir BERTRAND DAWSON (London) opened a discussion on

The Pathogenesis, Diagnosis, and Medical Treatment of Gastric Ulcer.

He said that throughout the discussion the terms "mucous ulcer" and "chronic ulcer" would be employed. Mucous ulcer denoted an ulceration of the mucous membrane. It was usually a subacute condition, tending to heal quickly and completely. Sometimes, however, it progressed rapidly into perforating ulcer or took on the characteristics of a chronic lesion. By chronic ulcer was meant a condition which involved most or all of the coats of the stomach, and could usually be appreciated by sight and touch without opening the stomach. Duodenal ulcer was included in the discussion. The duodenum above the common duct was embryologically, functionally, and pathologically closely related to the stomach, and the problem on the two sides of the pylorus was the same. Mucous ulcers were associated not only with the terminal stages of fatal diseases like septicæmia and Bright's disease, but with curable gastric disorders. They were seen not only in the post-mortem room, but on the operating table. They were produced by the combined effect of (1) lowered vitality or damage of the mucous membrane; (2) acid juice. Damage might be by local bacterial infection, gastrotoxins, or mechanical injury. Like the mucous ulcer, chronic ulcer existed where the hydrochloric acid juice existed. Its appearance suggested chronic irritation and efforts at repair. Pathological anatomy supported the development of the chronic from the mucous ulcer. The defensive forces of the gastric mucous membrane were considerable, and mucous ulcers healed rapidly. On reaching the submucous coat this specially defensive mechanism disappeared. If, then, the invading force was strong and its progress rapid, acute perforating ulcer occurred, whereas if it was less strong and its progress slow, chronic ulcer developed. Mucous ulcers were multiple, whereas chronic ulcer usually occurred singly; mucous ulcers existed over the whole of the stomach, whereas chronic ulcers were usually found in the region of the pylorus; the different age and sex incidence in the two conditions were facts which might be held to support the separate origin of chronic ulcer. The clinical picture of ulcer had altered. Whereas formerly the typical patient was most often a young woman who had pain after food relieved by vomiting, with or without hæmatemesis, now the patient was more often a man, usually over 30, and food more often relieved pain than produced it. The change of view was due to surgery. In the pre-operative group a case here and there came to necropsy for perforation or hæmorrhage; the remaining cases recovered, and it was a natural inference that they consisted of ulcers which had healed under treatment. Pain, tenderness, vomiting, hæmatemesis characterised other conditions besides ulcer, and bleeding need not have a focal origin. Analysis of causes in the pre-operative group showed chronic ulcer as now understood; gastritis, due to food or drink irritation, to intoxications, and to chronic infections, aided in many instances by impaired motility; disordered secretion, set up by distant irritation (in, say, appendix or colon), and associated or not with pyloro- or cardio-spasm. Mucous ulcers were no doubt sometimes present, but they gave no special manifestations, and called for no different treatment. They were of interest for what they could lead to if the conditions with which they are associated are not treated. *Clinical pictures illustrating foregoing:* (1) The dyspepsia of the anæmic young women; (2) gastric symptoms and trouble in the colon; (3) gastric symptoms and the appendix; (4) gastric symptoms and morbid condition of mouth, nose, and pharynx. *The clinical picture of chronic ulcer*: (Developed structural stenosis of the pylorus was excluded because it gave evidences of its own and presented no difficulty); objective findings and their value; tenderness, cutaneous hyperæsthesia; size and position of stomach; test supper and breakfast disclosing acid content and motility; bacteriological examination; X ray examination. Hæmatemesis and melæna needed separate consideration because they might occur alone as well as in conjunction with

above symptoms. If in conjunction, they made the ulcer picture clearer. *Diagnosis:* Systemic disease might wear the guise of stomach disorder, but seldom presented difficulty to the experienced clinician. The conditions that did present difficulty were: (1) Malignant disease of the stomach; (2) infective or toxic gastritis associated with disease of gums, tonsils, pharynx, and nose; (3) gastric disturbance caused by disease of gall-bladder, appendix, and colon; (4) hyperchlorhydria of unknown origin. Treatment included rest in bed, which was of paramount importance, sparing energy and diminishing the need for food. The diet should be milk given frequently in small quantity for several days, being extended by the addition of more substantial articles as recovery progressed. Resistance to treatment proved the existence of ulcer, but tonics could usually be given towards the end of a week. Chronic ulcer called for similar diet and, in addition, alkali to neutralise the effect of gastric juice, for it was essential to keep down the gastric acidity even at night and when the stomach was empty. The indications for gastro-enterostomy were stenosis of pylorus and the persistence of chronic ulcer, wherever situated. The artificial stoma acted as a safety-valve, preventing distension, keeping the organ empty, even of its own secretion, and even allowing the ingress of alkaline duodenal secretions.

Professor R. SAUNDBY (Birmingham) dwelt on the difficulty of discriminating between major and minor conditions, and considered it wise to treat all on the lines of ulcer. He did not feed during hæmatemesis, otherwise he agreed to administering a gradually increasing diet. Operation availed nothing in acute hæmatemesis, but should be reserved for pyloric stenosis and hour-glass contraction, though the possibility of spasm accounting for both these conditions should be borne in mind.

Professor MITCHELL CLARKE (Bristol) considered after a review of cases that the age of 35 years formed a line of demarcation between the two forms of gastric ulcer. Those under 35 were chiefly females suffering from mucous ulcer, while from 35 onwards the cases included both men and women mainly suffering from chronic ulcer. He attributed the complaint to employment of articles of food involving delayed digestion, attended by over-acidity, especially in working girls.

Dr. WILLIAM HUNTER (London) thought gastric ulcer supervened on an inflammatory state of the stomach of streptococcic origin, constituting gastritis with necrosis, the later induration resulting from the effect of exposure to gastric juice. "Oral sepsis" was a potent factor, and in all cases attention should be directed to the teeth and gums. In his experience the temperature was raised in early stages—a fact which supported the view of infection; so that he was satisfied with careful treatment of the mouth, leaving the stomach to recover with time and suitable dietary. It had been constantly asserted that the stomach had antiseptic power, but this was exerted only by the hydrochloric acid, and was fully efficient only two hours after a meal. In anæmia and ill-health it might fail altogether.

Dr. CHARLES MILLER (London), who had examined histologically specimens obtained in the post-mortem room or by operation, described the minute changes especially in connexion with vascular disease. With endocarditis and minute emboli small ulcers were found, and with thrombosis blocking arteries, necrosis and ulceration occurred on a more extensive scale. Miliary tuberculosis and heart disease were frequently the cause, and thrombosis was met with in the gastric venules. The lymph follicles, which were absent in infants and scanty at 2 years, were well developed in adults and resembled the solitary follicles in the colon. They were found enlarged and projecting in irritated areas, and when inflamed, swollen and necrotic. There were definite microscopic changes in the ulcerated spots and adjacent areas, and he cited observations and experiments on mucous membrane proving that hydrochloric acid would disintegrate tissue when the circulation failed.

Professor VAUGHAN HARLEY (London), from chemical analysis of stomach contents, said that in gastric ulcer there was no pyloric spasm, and the test meal showed normal changes, though there might be apepsia. A permanent cure was difficult to ensure. Rest in bed and hot applications to the abdomen were the most effective remedies. He did not advocate operation.

Dr. W. J. TYSON (Folkestone) said that acute cases of gastric ulcer at 20–25 years of age showed more marked symptoms than the chronic variety, and either recovered or died quickly. He was guided in considering operation much by the circumstances of the patient and choice of operator.

Dr. A. MACLENNAN (Runcorn) compared gastric with stercoral ulcers. He affirmed that 70 per cent. occurred on the small curvature and posterior wall. In normal conditions the mucous membrane was protected by local and general defences. Experimental observations suggested the existence of an antiferment. Superficial ulcers occurred mainly in young women, and in this connexion he called attention to the fact that in chlorosis the blood was less alkaline than normal. Treatment by nutrient enemata was liable to induce acetonuria and so do harm. Normal saline solution was more satisfactory, or olive oil by the mouth. Iron given hypodermically in chlorotic cases was of value. Chronic pancreatitis, when present, involved obstruction of the gall-duct and gave rise to symptoms suggestive of gall-stones.

Dr. S. H. HABERSHON (London) expressed himself as opposed to the view advocated by Dr. Hunter, inasmuch as the association of ulcer with hyperchlorhydria, so common in young women, fulfilled the requirements of antisepsis. Apart from this, other sources might be a B. coli infection or the cytotoxin of Dr. Bolton. He suggested that an acute mucous ulcer might ensue on superficial erosion or small embolism. The superficial ulcer did not induce pyloric spasm, but that might ensue later from deeper ulceration. In pyloric ulcer the symptoms culminated two to four hours after food or at the end of the day; there were variable dilatation of the stomach and hunger pain.

Mr. HERBERT PATERSON (London) advocated waiting six months rather than two before resorting to surgery in gastric ulcer. He had found duodenal ulcer common, but gastric ulcer rare, on the operating table. The pyloric vein formed an easy landmark between the two regions. Operating for and during hæmatemesis was usually fatal. In gastrostaxis blood was effused between the cells of the mucous membrane, and this was also the case when bleeding occurred with ulcer. His own experience bore out the association of hyperchlorhydria with pyloric ulcer and hypochlorhydria in association with ulcer elsewhere. A great number ultimately required surgical aid whether the ulcer was near the pylorus or not. Gastro-jejunostomy was more efficient physiologically than mechanically owing to the diminution of acidity.

Dr. J. M. BUCHANAN (Liverpool) said that it was common to find spasm in the pharynx or œsophagus associated with gastric ulcer. The temperature was raised, and when intermittent was a warning of impending perforation. There were also toxic symptoms, such as aching limbs and back, indicating a fresh outbreak. Treatment should include absolute rest in bed for a prolonged period, six weeks or more. Serum given by mouth relieved pain. After operation the artificial stoma worked intermittently.

Dr. A. F. HERTZ (London) emphasised the value of X rays with the bismuth meal in elucidating organic gastric conditions. In 50 duodenal cases he found the stomach small 2 inches above the umbilicus, owing to hypertonic peristalsis. The stomach emptied itself rapidly, the duodenum itself looking dilated. In gastric ulcer the viscus emptied slowly, and presented hour-glass contraction due to spasm. Intermediate meals relieved pain in duodenal, but not in gastric, ulcer. When the stomach was dilated he recommended operation, but thought the small hypertonic condition was better treated medically. Olive oil diminished gastric pain and supplied the maximum nourishment for its bulk. Belladonna succeeded in other cases. There appeared to be an ulcerating diathesis, seeing how readily ulcers healed and reformed. Olive oil should be continued before meals, mastication thoroughly effected, and the first indications of relapse attended to immediately.

Sir BERTRAND DAWSON replied, and the meeting closed.

SURGERY.

THURSDAY, JULY 25TH.

President, Professor RUSHTON PARKER (Liverpool)

Professor E. HURRY FENWICK (London) opened a discussion on

The Diagnosis and Treatment of Tuberculous Disease of the Urinary Tract.

He began by saying that the bedrock fact of the subject was

that the kidney was able to excrete tubercle bacilli and toxins. These passed down the ureters to the bladder, and then produced irritative symptoms which were often mistaken for indications of cystitis. But no cystitis in the early stage existed. He asked two questions: (1) Was the kidney always the starting-point of urinary tuberculosis? and (2) Was surgery the only treatment? The two sexes must be considered separately. The diagnosis must be given in over 90 per cent. by the bacteriologist, who could also usually say whether the condition was acute or chronic. In women, at least 98 per cent. of those with tubercle bacilli in the urine had renal tubercle. Thickening of the ureter felt by vagina or rectum gave valuable guides (in 82 per cent. of cases) and indications for operation. A large number of coloured diagrams were shown illustrating the contraction or retraction of the tuberculous ureter. There were two types of this—the open, swollen ureter and the contracted narrowed ureter. The cystoscope showed characteristic changes corresponding to both these. Sometimes a retracted funnel-shaped ureter was present, indicating an old damaged ureter, in 95 per cent. of which cases the corresponding kidney was damaged beyond repair. In others an appearance of little bubbles round the ureteric orifice accompanied an acute ureteritis, and such cases were unsuitable for immediate nephrectomy. In the male sex the picture was quite different, and the ureteric orifice gave much less guide to the state of the kidney. As regarded surgery of the ureter, the microscope did not show tubercles in the ureteric wall, and therefore it was not necessary in operating to follow them right down to the bladder. As regarded tuberculous disease of the bladder, the less it was directly attacked surgically the better. Often the ulcers healed when the primary kidney disease was removed. In women there was no primary tuberculous cystitis. In males, on the other hand, the cystitis might be primary or secondary to genital tuberculosis. In these cases the bladder became much contracted, and a short-circuiting of the ureters on to the loins gave great relief. Tuberculin was regarded as a powerful tonic which had given brilliant results, but the latter, however, only lasted for a time. It did not cure but caused great amelioration. It was also useful for diagnosis. A big dose was given in doubtful cases, and if pain was caused in the suspected kidney it showed that it ought to be removed.

Mr. A. FULLERTON (Belfast) referred to tuberculous disease of the bladder. In 300 cases of cystoscopy 10 per cent. showed tuberculous cystitis. Often the symptoms were very slight or even latent. It was held that primary tuberculous cystitis really existed, though very rarely, two examples being given. In most cases, as judged by ureteric catheterisation, the disease of the kidney was unilateral. The chief value of the cystoscope was to determine by help of catheterisation of ureters which kidney was diseased and whether the other kidney was sound enough to justify nephrectomy. In his last 32 cases of nephrectomy no fatality had occurred. In his whole series 11 per cent. mortality had been experienced.

Mr. E. DEANESLEY (Wolverhampton) confirmed Professor Fenwick's statement that in female cases the prognosis was much better after operation than in males. He expressed doubt as to whether any cases of tuberculous kidney occurred in which there were no recognisable changes in the bladder—in which diagnosis must depend on the bacteriology alone. A case was mentioned in which a calculous kidney was accompanied by ulceration round the ureteric orifice like that usually associated with tubercle. No difficulty had been experienced in double ureteric catheterisation in all cases except those where the bladder was much diseased. In practically every case before removing one kidney he explored the other through a lumbar incision. He performed all operations in the complete prone position, in which both kidneys could be attacked without moving the patient.

Professor SINCLAIR WHITE (Sheffield) said he had often seen a stone acting as the preceding cause of tuberculosis of the kidney. It was considered to be seldom that in cases of tuberculous kidney the disease was confined to the kidney, and that therefore in by no means all cases should radical surgery be resorted to. He had seen good results from expectant and hygienic measures. Especially in old-standing cases on the right side there was great difficulty and grave danger in operation. Probably many more cases were now operated upon than was wise.

Mr. H. T. MURSELL (Johannesburg) spoke of the expectant open-air treatment of urinary tuberculosis in South Africa. In no single case in over six to seven years had complete recovery taken place.

Dr. J. S. DARLING (Lurgan) related a case watched over a long period illustrating how difficult it is to cure these cases by expectant methods.

Mr. C. P. CHILDE (Portsmouth) spoke as to the danger of draining the wound after removing a tuberculous kidney, as this so often led to a persistent sinus.

Professor FENWICK, in replying, stated that in the chronic cases life was often prolonged for as much as 30 years, and it was very difficult to say that expectant treatment or tuberculin ever cured. He deprecated exposing or cutting open kidneys for diagnostic purposes, because in reasonably early cases all the disease was inside the organ and the surface was perfectly sound. He admitted that it was much better when possible to avoid drainage, and the ureteric stump was only crushed and twisted without a ligature Cystoscopy and nephrectomy ought to be done at the same sitting. Cystoscopy of the tuberculous bladder in the male was very dangerous, and he had had several fatalities from this.

Mr. W. SAMPSON HANDLEY (London) read a paper on

Trans-articular Operations on the Knee and Elbow-joints for Fracture.

He said that many cases of T-shaped fractures of the elbow led to partial ankylosis necessitating excision. He related the case of a boy of 9 in whom occurred a complicated fracture of the lower end of the femur. No external method availed to restore the position of the epiphysis, but through an inverted U incision which turned up a flap the fragment was screwed in place with good result. In the elbow the joint was best opened by two lateral incisions, which were then joined so as to expose the olecranon, which was divided and turned back with a muscular flap of triceps.

Mr. H. A. BALLANCE (Norwich) differed from many of the above statements. Separation of the lower epiphysis of the humerus was a very rare condition. The majority of cases of fracture at the lower end of the humerus required operation. The best method of union was passing a screw from the external condyle through the lower fragment into the shaft. If operation is undertaken within 48 hours the parts can often be replaced and fixed without any screws or plates.

The PRESIDENT stated that treatment of fractured elbows by acute flexion gave good results. It was necessary to give absolute rest for several weeks without either movement or massage, even though the parts were not in good anatomical position. Any manipulation made in the first week after fracture ensured a stiff joint.

Mr. HANDLEY, in replying, made it clear that he advocated operating only in exceptional cases.

Mr. A. DON (Dundee) read a paper on

Complete Excision of the Hæmorrhoidal Area, with Results of Cases.

He described a modified method of performing Whitehead's operation above the pile area. A cork was passed through the sphincter and pulled down by a corkscrew so as to evert the mucous membrane, and then with pins this fold was transfixed into the cork and the fold was cut off after tying a circular elastic ligature round the mass, and then the two layers were joined by a continuous suture. Out of 50 cases in not one had a second operation to be performed. There was never any stricture. In only two cases was there much hæmorrhage.

Mr. R. A. BICKERSTETH (Liverpool) read a paper on

Ureteric Obstruction.

The pathological conditions associated with ureteric obstruction were discussed. As regarded other than stone cases, a dilated thin pelvis became kinked upon the beginning of the ureter. The results of artificial distension on recent fresh cases were figured. The kinking of the ureter was often over one or more branches of the renal artery, which was extremely liable to variation. The effect of fibrotic changes in pyonephrosis was to cause cicatricial contraction of the renal pelvis.

At the afternoon session was presented

The Report of the Special Committee on the Treatment of Fractures.

This committee was appointed after the 1910 meeting to

report on the after-results of operative and non-operative treatment of fractures. Its active members were Mr. W. J. Greer (Newport), Mr. C. H. Fagge (London), Mr. H. J. Paterson (London), and Mr. W. Trotter (London). The report was based on the personal investigation by members of the committee of no less than 2940 cases of the simple fractures of the long bones, and it comprised 37 closely printed pages beginning with a summary of conclusions and ending with special articles and illustrations by various eminent workers in this subject. Some of its most striking results may here be quoted: 1. The age-incidence of fractures exercises the most striking influence on after-results. Thus, in patients under 15 years all methods of treatment give good results and there is not apparent any superiority of operative over non-operative methods (90 per cent. and 93 per cent.). 2. In those over 15, however, there is a striking difference. Non-operative methods give only 42·4 per cent. good results, whilst operations yield 66·3. 3. Good functional results are usually only the outcome of good anatomical restoration. 4. Methods—e.g., those simply of movements and massage—which do not promise a good anatomical result do not give satisfactory functional results. 5. Operative measures—e.g., wiring—which attain neither good apposition nor fixation are unsatisfactory. 6. Operations ought to be performed as early as possible and not delayed until after non-operative methods have been unsuccessfully tried. In addition to the analysis of this large series of English cases, a large number in the practice of M. Lambotte were seen and reported on, and the report concludes with synopses of their methods by Lambotte, Arbuthnot Lane, Lucas-Championnière, Steinmann, and Bardenheuer.

Mr. GREER, in presenting the report, explained the methods by which the facts and figures had been arrived at. He pointed out that the number of operative cases was much too small to justify any finality of opinion, but that all members of the committee were absolutely convinced that the attainment of anatomically accurate reduction was a cardinal condition for the production of a successful functional result.

Mr. C. A. MORTON (Bristol) did not agree with the opinion that a good anatomical apposition was always necessary for a perfect functional result.

Mr. H. HAWARD (Northwich), commenting on the support which the report gave to the superiority of operative over non-operative methods, said that whilst this might be correct in large towns, his own experience of country practice led him to believe that the older methods of splint treatment gave excellent results and that wiring fractures often gave very bad ones.

Mr. DARLING spoke in favour of the non-operative methods.

Mr. E. W. HEY GROVES (Bristol) most warmly congratulated the committee on the results of their arduous work, which might well form a model and a monument for future imitation, and considered that the report was of the utmost value as establishing an impartial standard of results in the treatment of fractures with which all future series of cases could be compared. He demonstrated by means of lantern slides and pathological specimens various experimental results in the operative treatment of fractures. These included fixation by steel plates and short screws, long plates and transfixing pins, metal collars, various kinds of intra-medullary pegs, and a special apparatus for use in cases of compound and comminuted fracture.

Sir VICTOR HORSLEY (London) expressed warm thanks for the work of the committee, and thought that the report was one of the most valuable pieces of scientific work ever produced by the Association. He pointed out that bad results after "wiring" of bones were quite beside the point, because this was no longer to be regarded as a modern method for the operative treatment of fractures. Further, it was no objection to operations on fractures that this would involve an impossible demand on hospital beds. On the other hand, cases properly operated upon would leave the hospitals so much earlier than non-operative cases that this would more than compensate for the extra number of cases admitted. From what he had personally seen of the methods of treatment by massage and early movement, he was convinced that these gave results which could be greatly improved upon by operations, and the report bore out this idea.

Mr. BALLANCE, in supporting the expressions of thanks due from the Association and profession to the committee for their laborious and most valuable report, pointed out that there were certain fractures especially in which operation offered a much better chance of good functional result than they had hitherto attained. Of these, in his opinion those at the lower end of the humerus were perhaps the most important.

Mr. PATERSON spoke as to the futility of wiring broken bones. With the exception of the olecranon there was no long bone in which this method was justifiable. A personal examination of M. Lucas-Championnière's cases, both at the latter's own hospital and at another where his method was in vogue, had convinced him that early mobilisation and massage could not alone be relied on to secure good functional results. No fact in the committee's report stood out more clearly than that anatomical and functional success in the treatment of fracture go together. The superior results given by operative over non-operative measures would have been much more apparent if they had been able to exclude cases of "wiring" from the operative results.

Mr. FAGGE confirmed what had been said by other members of the committee as to the importance of attaining a good anatomical restoration in order to get good functional results. A little shortening did not seem to be of so much moment as either axial or lateral deviation of the fragments. He was greatly impressed with the large number of cases of non-union produced by the splint method, and he would suggest that in many cases of persistent pain in old fractures there was no true bony union.

It was unanimously agreed to present the report to the Association for their adoption and publication.

ELECTRO-THERAPEUTICS.

THURSDAY, JULY 25TH.

President, Mr. C. THURSTAN HOLLAND (Liverpool).

The second day's proceedings were opened by Dr. LEWIS JONES (London) with a discussion on

Ionic Medication.

He said that an examination of the gains made so far might be grouped under the headings of the various ions employed. Under zinc ions good results had been obtained in simple chronic ulcer of leg, bed-sore ulcerations, rectal ulceration, mucous colitis, hæmorrhoids, anal fissure, ulceration of mouth, pyorrhœa alveolaris, ulceration in the nose, sinuses, urethritis, gynæcological conditions, sycosis, furuncle, acne, warts and corns, lupus, and rodent ulcer. The salicylic ion: 1. Perineuritis and neuralgia: trigeminal, great occipital, external cutaneous of thigh, brachial plexus, and sciatica. 2. Painful affections of muscular and fibrous tissues: lumbago, sprains, acute and chronic, and spondylitis deformans. 3. Arthritis: gouty and rheumatic. Chlorine ions: scars after burns, operation scars, ankylosed joints, Dupuytren's contraction, and corneal opacities. Iodine ions: similar to chlorine. Radium ions: in nævus and sarcoma.

Dr. SAMUEL SLOAN (Glasgow) referred to the excellent results he had obtained in gynæcological practice, and papers bearing on this he had published in THE LANCET and elsewhere.

Dr. FRANK FOWLER (Bournemouth) spoke of the value of large pads and large currents in ionic practice. While poor results had been obtained in sciatica, this was often due to the cause not being correctly ascertained. He frequently found that a sciatic pain arose from a neuritis in the lumbar region. Ionisation of the latter area was more frequently successful in such cases than application lower down where the pain was more severe.

Dr. A. E. BARCLAY (Manchester) referred to a case of unusual intolerance of the electric current employed for ionisation; the patient fainted and passed into a state of shock on two occasions with a long interval between, showing that it was due to the current and not to any accidental circumstance attending the first occasion.

Dr. LEWIS JONES, in the course of his reply, asked what had been the experience of others in contraction of the palmar fascia (Dupuytren). He personally had had four cases, only one of which had been successful.

Dr. G. F. HAENISCH (Hamburg) read a paper on

The X Ray Treatment of Uterine Fibroids.

His experience, he said, in this matter now extended to 50 cases, of which 15 were still under treatment. Four others

discontinued treatment of their own accord for various reasons. Three cases had been definitely improved, and four cases were not benefited. In all the latter the reason for non-success was either wrong diagnosis or the case was too severe to wait the necessary time for the treatment to be carried out. No less than 24 cases had been symptomatically cured and had remained so for periods varying from one to three and a half years. In all these there was a cessation of the hæmorrhage, relief of pain and the inconvenience of the tumour. The older the subject the more likely was the method to be successful. It should not be attempted in patients under 40 years of age, and not on large *old* myomata. The interstitial and intramural varieties were the most easily influenced. In almost all cases the character of the menses was altered favourably.

Dr. SLOAN congratulated Dr. Haenisch on the results he had obtained, and a vote of thanks proposed by the PRESIDENT to Dr. Haenisch for coming over from Hamburg to read this important paper was carried by acclamation.

Dr. SLOAN then read a paper on

Experiments on the Physics of Ionic Medication.

He stated that the object of his experiments on the physics of ionic medication was, if possible, to elucidate the following points: 1. To what distance, measured in millimetres, did a given current in a given time cause penetration of the ions into the tissues? 2. Might this be modified by modifications in the application of the current? 3. What was the total quantity of ionic material actually introduced from a therapeutic dose? 4. What, if any, chemical change did the ion introduced undergo after penetration? 5. How was it disposed of after its introduction? 6.–How did the ionic material act; if it was an antiseptic before introduction, had it the same property after it was introduced into the tissues? 7. Did it pass into and through the tissues as in diffusion—that was, mainly by channels; or did it enter also into the interior of the individual cells during its electric propulsion? Dr. Sloan had stated at the beginning of his paper that it was important to recognise the difference between medical ionisation and electrolysis, pointing out wherein these processes differed, and how, as in the application of the bare soluble electrode to the interior of the uterus, we had a combination of these two processes. In measuring the depth of penetration he endeavoured to draw a distinction between mere diffusion and electric penetration, and to separate the measurements of these two actions. He came to the conclusion that the depth of penetration from diffusion alone varied very materially, according to the firmness or impenetrability of the medium, and gave precise figures bearing on these points afforded by his experiments. His conclusion was, that for a surface of about 2 cm. diameter, the electric penetration alone for one therapeutic dose—about 20 coulombs for a period of about 20 minutes—varied in amount from ½ mm. to 1 mm. according to the conditions. In calculating the actual quantity of ionic material introduced, the inquiry proved somewhat difficult at first. He expressed his conviction, however, that in the case of the copper ion, the only ion to which meantime he had devoted his attention in this inquiry, a total quantity of about 1 mgm. could be passed into the tissues by electric penetration alone during the application of one therapeutic dose. According to the method of calculating this, up to the present moment, the quantity, according to Faraday's law, was 6·6 mgm. This, however, really meant the amount of copper reduced at the cathodal electrode, and differed essentially from the amount of the ion *moved on* from the neighbourhood of the anode. As to the disposal of the copper ion after penetration, he stated it as his belief that practically the whole of the copper was converted into two different albuminates of copper, of which he showed examples in test tubes; the whole of the copper having thus been converted from an inorganic ion to the atom of a complex organic ion. As to his views regarding the after disposal of the insoluble albuminate, or other insoluble copper compound that might be formed in the tissues, he referred those hearers interested to an address given by him in Glasgow and published in THE LANCET of Dec. 23rd, 1911. He had tested the antiseptic action of copper in its organic form, using fresh urine for this purpose. Two tubes were employed for controls and two for testing. Of the latter two, one contained one part of $CuCl_2 2H_2O$ in 1200 parts of the slightly diluted urine. The other, the same proportion of copper, but in the form of an albuminate. Of these four specimens three had become fœtid in ten days' time. The remaining one, that containing the albuminate of copper, was still—28 days after the application of the test—perfectly sweet. Dr. Sloan's last point was that the copper ion during electric propulsion lodged not in the channels of the tissue but in the protoplasm of the cells. Of this he had had microscopic evidence.

Dr. FLORENCE A. STONEY (London) read a paper on

The Cure of Exophthalmic Goitre by Roentgen Rays.

For four and a quarter years she had been treating cases of exophthalmic goitre with X rays, and with such good results that she believed that X ray treatment far excelled any other method of combating this disease. She had had 48 cases—mostly at the New Hospital for Women, London, the others being private patients. Of these, 7 gave up too soon to test the treatment; of the other 41 cases, 36—i.e., over 87 per cent.—had returned to their ordinary life and work, 14 being completely cured and 22 showing only slight symptoms. Of the remaining 5 cases 4 benefited fairly and 1 slightly. Twenty-three of these cases had been bad acute cases; of these, 3 were improving rapidly under treatment; 1 passed out of her care, was operated upon, and died within 12 hours. All the others had done excellently and were back at work. If the case was a bad one or of long standing it took about six months really to cure, but early or slighter cases were cured in a much shorter time. Dr. Stoney's treatment was to put the patient on a couch for about ten minutes twice (in some cases only once) a week and expose the neck alternately on the right and left to an X ray tube with the anode placed 6 inches from the skin, which was protected by folds of blanket. There was no danger and practically no discomfort in the treatment, but it was somewhat tedious. Slight dermatitis often occurred, and then treatment should be stopped till it subsided; it was never serious. In acute cases the rays must be pushed to the limit of what the patient could stand, in order to stop the over-secretion poisoning the patient. Besides the actual atrophy of the gland by X rays to bring it back to normal, it was necessary also to combat the enfeebled health of the patient caused by the extra thyroid secretion already in the system. When the heart was dilated much rest was necessary, for some weeks at least. It also hastened matters to put the patient into as good health as possible; for this good feeding and absence of worry were indicated. The removal of tonsils and adenoids was strikingly useful, and above everything else oral sepsis *must* be set right. Neglect of these points delayed the cure considerably. Many of the cases had got well, while continuing at work all the time, and on the other hand, many had had rest cures for months or years, and yet when they started X rays had a pulse over 130, which came down under the influence of the rays in a very few months to being practically normal. At the same time the dilatation of the heart disappeared, as also did most of the murmurs; in some cases, however, there had been a previous endocarditis which persisted. The goitre often persisted to a considerable extent and sometimes disappeared entirely. The patients rapidly gained self-confidence, the tremor diminished, and they regained a feeling of well-being, losing their nervousness and being able to enjoy life. Many cases of slight debility were really unrecognised cases of early exophthalmic goitre, with perhaps only a rapid pulse (88), or slight fulness of the thyroid, or nervousness, and were cured readily by a few X ray exposures.

Dr. LEWIS JONES spoke of the difficulty of keeping in touch with cases of goitre. He also was of the opinion that the relief such patients obtained from X ray treatment was more purely symptomatic than anatomical, as might be gathered from Dr. Stoney's paper.

Dr. JAMES METCALFE (Bradford) spoke of the value of small doses of hydrofluoric acid given during X ray treatment. He found that progress was more rapid than when the rays were used alone.

Dr. F. HERNAMAN-JOHNSON (Bishop Auckland), in a paper entitled

An Inquiry into the Causes of Failure of X Ray Treatment in Deep-seated Cancer,

said that a good deal might be learnt on this subject by a

consideration of rodent ulcer. This was, as a rule, readily curable on the surface, but some malignant cells in the depth were apt to remain alive and cause subsequent relapse. Failure was probably due to the use of tubes which were too soft, and produced a disproportionate effect on the surface. By employing very hard rays, and intensifying them by means of injecting some heavy metallic substance, they could produce as great a physiological disturbance at a depth of 1 cm. as at the surface itself. The question of efficient deep dosage must be solved before we could be said to have given X rays a fair trial in deep-seated disease. Cancer cells strongly resembled embryonic cells, and, according to J. F. Gaskell, the latter could not be killed except by a "critical dose," which implied a definite quantity within a definite time. The critical dose for any given mass of embryonic cells depended chiefly upon its rate of growth—a slow-growing tumour ought to require less to kill it than a fast-growing one of the same type. Recent experiments in the growing of tumours *in vitro* should enable them to obtain a knowledge of the dosage required to kill various neoplasms, and to ascertain whether this dose could be given with safety to the normal superjacent tissues. Meanwhile, they ought to use the hardest tubes they could get hold of, and filter the rays heavily through aluminium. They should also choose two or more paths of entrance for the incident beams, and place the anticathode between 30 and 40 cm. from the skin. It was not as yet possible to apply secondary ray therapy to any great extent to visceral cancer; what was wanted was a method of impregnating tumour cells with heavy atoms while leaving normal cells free. The experiments of Wassermann with selenium and eosin might possibly furnish us with a means of doing this.

Dr. A. E. RAYNER (Preston) read a paper on

The Treatment of Hypertrichosis by the X Rays.

After dealing with the great amount of harm done by the use of quack remedies, and the limitations of the use of electrolysis in this annoying condition, he pointed out the suitability of the X ray method in those cases where there was an abundant growth of close downy hairs on the lower part of the face, and those in people of 35 and upwards on whom there was a widespread growth of stout, strong hairs that might resemble the beard of a man. While the X ray method had fallen into disrepute on account of the disastrous results in the way of burns, telangiectases, pigmentation, and a curious senile appearance of the skin, he considered that with modern methods of measurement and filtration most or all of these undesirable results could be avoided. He used an aluminium filter of 0·5 mm. thickness between the tube and the skin, the pastille being exposed directly to the rays. These doses were given at intervals of from two to three weeks. Dr. Rayner brought three cases to show the results of his method. Two were apparently cured, and the third, a very severe case, was still under treatment, but much improved according to the patient's own testimony.

It was unfortunate that no discussion could be allowed for want of time on this paper. It was more or less freely expressed in conversation that in spite of the precautions taken a telangiectatic condition of the skin and mucous membrane was very likely to follow; in fact, there was a small telangiectasis on the inner side of the lip of one of the cases shown, but Dr. Rayner accounted for this by the use of too thin a filter in the earlier part of his work.

Dr. W. BENHAM SNOW (New York) in a paper entitled

The Non-operative Treatment of Prostatitis

said that the method was discovered by noting the reduction in size and softening of the gland when treating a case of intrapelvic neuritis with the static wave current. The *modus operandi* of the method consisted in the mechanical effects of the static wave current as produced by a modern static machine. The current was passed through the medium of a metallic electrode, cylindrical in shape, ¾ inch in diameter, and 3½ inches in length. The electrode was fastened to one extremity of a vulcanite holder. It was placed in position with the patient lying upon the side, his back being towards the static machine. The electrode was secured in position, pressed forward against the gland. The spark-gap used with the wave current should be regulated to from 2 to 5 inches, varying with the degree of pain produced by the contractions induced by the current. The spark-gap, the measure of dosage, should be gradually increased during the usual 20 minutes' administration. The discharge at the spark-gap to obtain the best results should be at a rate of 180 to 300 a minute, that the mechanical effects of contraction and release might alternate at about equal periods, 600 being the rate at which tissue response ceased. The effects of the administration were to soften the gland by forcing out the infiltration through the lymphatic channels, without irritation and without expression of the normal glandular secretions, in contradistinction to prostatic massage which produced marked irritation and expressed the normal secretion, and to but a small extent the infiltration. Dr. Snow reported cures in a large percentage of more than 200 cases. Attention was called also to the fact that prostatitis was frequently the cause of neurasthenia, as demonstrated by the disappearance of the syndrome with the cure of the condition.

ANÆSTHETICS.

THURSDAY, JULY 25TH.

President, Dr. DUDLEY W. BUXTON (London).

After a few introductory remarks, the PRESIDENT called upon Mr. C. A. LEEDHAM-GREEN (Birmingham) to open a discussion on

The Comparison of Methods Employed for Inducing Anæsthesia and Analgesia Respectively, with Special Reference to After-effects.

He said the difficulty of getting reliable statistics of mortality of the different anæsthetics employed had increased of late owing to the number of drugs, combinations, and methods of administration adopted. He quoted statistics of a large number of cases published by Gurlt giving a mortality for chloroform of 1 in 2075, and for ether of 1 in 5112. Mr. Leedham-Green had himself obtained statistics from various British hospitals which, however, were not sufficiently large to prove anything except that chloroform was six or seven times more lethal than ether in this country. He had been unable to find that the dosimetric administration of chloroform had lowered the mortality. In spinal analgesia also there was a great variation in death-rates given by different authorities; he was inclined to believe that Strauss's estimate of 1 in 2000 was nearest the mark. Enthusiasm for this method had somewhat declined of late, owing probably to the occasional severe after-effects. All anæsthetics were protoplasmic poisons. Chloroform was more toxic than ether and affected chiefly the myocardium, stomach, liver, and to a less degree the kidneys, whereas ether concentrated its injurious effects on the respiratory system. Much could be done by shortening the period of anæsthesia and reducing the amount of anæsthetic to diminish these toxic effects. The use of atropine and the open method also served the same purpose for ether. He did not think the intravenous administration of much use in this regard, as the ether was still eliminated by the lungs. Local infiltration analgesia was entirely devoid of danger and had a wide sphere of usefulness. Last year 40 per cent. of his hospital operations were performed under its influence. He did not propose to continue using it so freely—that was a special investigation; at the same time he urged its more general adoption, especially in the debilitated, but it was not advisable for intra-abdominal work or operations on inflamed tissues.

Dr. ALBERT EHRENFRIED (Boston, U.S.A.), in a paper on

The Intratracheal Administration of Ether,

said that this method of anæsthesia, which was introduced by Meltzer and Auer three years ago, had passed its period of probation, and was now generally accepted in the United States. He was led to adopt it for human surgery after an extended use on animals, which were very susceptible. In an extensive series he found that ether death and ether bronchitis practically never occurred. The first practical application of the method was made by Elsberg, of New York. Dr. Ehrenfried found Elsberg's apparatus too elaborate and not properly safeguarded; accordingly he evolved the simple apparatus now shown, which he had gradually perfected in the light of the experience of a year and a half. The peculiar advantages of this apparatus were its lightness, portability, inexpensiveness, simplicity, ease of operation,

and extreme safety. Unnecessary complications, such as manometer, thermometer, and electric current, were eliminated; there were, however, an adjustable pressure regulator and safety valve, and a filter to prevent condensed droplets of ether-vapour from being carried over into the lungs. The only difficulty experienced had been the introduction of the tracheal tube. He had discarded the Chevalier Jackson laryngoscope for the introducing forceps or cannula, which took less time and required no shifting of the position of the patient on the table. Facility with this method could readily be acquired. For a tube he used a French lisle or soft rubber catheter (size 21). For the intrathoracic work for which this method was originally designed it was bound to supersede the differential pressure cabinets on account of its increased safety (as shown by Auer), its simplicity, and its general adaptability. In general surgery this method was the best for extensive face, mouth, and neck dissections. There was no aspiration of blood or mucus into the lung, and no danger of dropping back of the epiglottis or tongue, and the patient was bound to get sufficient air at all times. The patient slept quietly, with more or less complete suspension of respiration, with good colour and pulse. Recovery was rapid and easy, and sequelæ of any sort were less frequent than with cone administration. The conduct of the anæsthesia should be supervised by a responsible anæsthetist. The best training was its prior use on animals. The technique of its application should be mastered by all who practised general surgery.

Mr. R. E. KELLY (Liverpool) showed his apparatus for the Intratracheal Insufflation of Ether. It consisted of a 1/6th h.p. electric motor driving a Hypress rotary pump at about 500 revolutions a minute. This provided a continuous stream of air at about 10–50 mm. Hg pressure. This blast of air was first cleaned by passing through water and then etherised by passing over the surface of a jar of ether. By an arrangement of taps the amount of ether could be regulated, and the blast was finally moistened and warmed by passing through a coil of piping immersed in hot water. The temperature and pressure were recorded by a thermometer and manometer respectively. He pointed out that this instrument differed from Elsberg's in that the air was warmed after passing over the ether. Condensation was thus prevented, and a continuous stream of warm, moist, and etherised air was forced under pressure into the trachea by means of a catheter passed through the glottis. The catheter was about half the size of the glottis, so that the excess of air produced a strong outward current of air at the glottis itself. The advantage of this was obvious in all tongue, jaw, neck, and goitre operations, as well as in cases of intestinal obstruction, for no blood, mucus, or vomit could make its way into the lungs against this stream. It also provided a perfect means of artificial respiration. The primary object of the apparatus had been to render thoracic surgery possible without the use of costly pressure cabinets, and in this connexion especially he brought it under the notice of the section.

Dr. G. E. ARMSTRONG (Montreal) said he had introduced intratracheal insufflation into his hospital in 70 cases with entirely satisfactory results. Operation on the lungs was greatly facilitated, as by lessening the pressure the lung could be allowed to recede from the chest wall when required. The impossibility of any aspiration into the trachea made it useful in operations involving hæmorrhage into the nasal or oral cavities and in operations for acute intestinal obstruction, and he recommended it in operations on goitres. After-vomiting was less and no deleterious results to the larynx had followed the passage of the catheter. He had used it in one case in which bronchitis was present and the patient did well. The noise of the electric motor was possibly a disturbing element.

Dr. S. THOMPSON ROWLING (Leeds) read a paper on

The Administration of the Vapours of Ether and Chloroform with Oxygen, either Separately or Mixed in any Proportion and in (Approximately) Definite Percentages.

He said there had been a long controversy on the respective merits of ether and chloroform as general anæsthetics. Both anæsthetics had special advantages, but a judicious combination of both had advantages over either separately. For example, the beginning of the administration with a mixture of ether and chloroform was less nauseating than with ether alone and less dangerous than with chloroform alone. The stage succeeding loss of consciousness and until deep narcosis was reached was the most dangerous period of the administration, and this should be met by giving the safer anæsthetic, ether. When deep narcosis was obtained a combination of ether and chloroform, or chloroform alone, was preferable to ether alone. The great difficulty hitherto in combining the anæsthetics had been that the methods of administration were different—ether was administered by an inhaler, chloroform by dropping on a mask. It was necessary that the same method should be used for both anæsthetics to obtain a successful combination. In the apparatus now shown both anæsthetics were used in the same way—each was vaporised by a stream of oxygen gas, and the stream of gas could be directed through either or both by the turning of a tap. It was found that an approximately definite percentage of vapour was given off in either case—from ether 40 per cent. of vapour, from chloroform 20 per cent. This formed the basis of calculation for the percentage administration in either case. The other factor in the calculation was the physiological fact that respiration was at the rate of 10 litres a minute. With ether vaporised at 1 litre a minute and the patient breathing 10 litres a minute, the percentage breathed was 1/10th of 40 per cent. = 4 per cent; at the rate of 2 litres per minute 2/10ths of 40 per cent. = 8 per cent.; and so on, when the vapour was administered on the plenum principle, with an open mask. To economise, and also to allow some rebreathing, a special form of slotted angle-piece might be used; the slot could be opened to any extent, admitting more or less fresh air. The vaporised ether passed into a bag as in a Clover's inhaler. With the slot open, 9/10ths fresh air was admitted, and the patient breathed 1/10th of 40 per cent. = 4 per cent.; with the slot almost closed, 5/10ths of fresh air and 5/10ths vapour = 5/10ths of 40 per cent. = 20 per cent.; and between these extremes any intervening percentage, those marked on the pointer being 16, 12, and 8 per cent. The use of the bag also prevented oxygen apnœa and enabled the anæsthetist to make use of the powerful respiratory stimulant, carbon dioxide, which could be done without cyanosis on account of the oxygen present. With chloroform the calculation was similar, but only ¼ litre a minute was used—i.e., a 5 per cent. vapour diluted between 9/10ths = 0·5 per cent., and 5/10ths of 5 per cent. = 2·5 per cent. Oxygen was always present in slight excess and increased the safety of the administration; it prevented cyanosis and gave a quiet respiration, even with ether vapour, like that of chloroform narcosis. It was physiologically antagonistic to carbon dioxide, and enabled the anæsthetist to use a high percentage of carbon dioxide when a respiratory stimulant was needed, without cyanosis; and it was the most powerful restorative when given in excess, and was always ready in case of emergency. The apparatus might be used for ether alone. The vapour was warm (76° F.) and oxygenated, and the percentage was known; the rebreathing was a powerful stimulant; there was no cyanosis and a quiet respiration, and the administration was devoid of risk. This was recommended for all not expert in the use of anæsthetics. For the specialist the combination of some chloroform at certain stages of the administration had its advantages. The method, which was based on scientific principles, was essentially practical, and had amply proved its worth in a large clinical experience.

MR. H. M. PAGE (London) advocated the use of Crile's nasal tubes, which he used for chloroform by connecting with a Vernon Harcourt inhaler when the case seemed unsuitable for ether; in either case he used oxygen continuously as well. An apparatus had been made for him by Messrs. Down Brothers for these various purposes, and it included a warming chamber for use with ether. Careful packing of the pharynx was most important. He gave a list of 33 cases in which he had conducted anæsthesia by this means, including several operations on the tongue, the floor of the mouth and jaw, and some cases of glands in the neck. When an operation was to extend as far back as the pillars of the fauces some other method was advisable, as the packing might be in the way of the surgeon. The results were very satisfactory; there were absence of shock and rapid recovery, and the anæsthetist was well out of the way of the surgeon. He strongly advised the method in all severe operations on

the mouth, as efficient packing removed all fear of aspiration of blood.

The PRESIDENT complimented Mr. Leedham-Green on the able manner in which he had held the balance evenly between the rival merits of anæsthesia and analgesia. Statistics were not always reliable, and everybody had his own method which in his own hands was perfect, but the really best method was the one which worked best generally. Chloroform mortality compared unfavourably with that of spinal analgesia, because whereas in the former the figures were derived from the practice of all manner of anæsthetists, in the latter they were furnished from the practice of the highest experts alone. This fact vitiated any comparisons. Unfortunately, chloroform was not always given by the dosimetric method. When the Dubois or Vernon Harcourt apparatus had been used no deaths had occurred. With Roth Drage's apparatus deaths were to be expected, for, although a regulating apparatus, it allowed of the administration of fatal percentages. He did not quite agree with Mr. Leedham-Green's statement that there were no deaths in regional analgesia; cases had been recorded in which this method had contributed to death. There were psychological reasons in favour of general anæsthesia. He thought it would be advisable for anæsthetists thoroughly to familiarise themselves with the apparatus and technique of intratracheal insufflation before attempting it on the human subject. He thought that intravenous ether did tend to mitigate pulmonary after-effects. Rectal anæsthesia had been mentioned as being tried abroad. He pointed out, however, that he had successfully introduced this method 20 years ago, and that it was his apparatus which was adopted abroad and now passed by the name of the distinguished foreign surgeons who had adopted it—one in America and one in Switzerland.

Mr. LEEDHAM-GREEN, in reply, stated that he was still sceptical as to the advantages of intravenous ether. He was much interested in the method described by Dr. Ehrenfried and Mr. Kelly and in the apparatus they showed. For some of the severer operations on the lung the method should be very useful, but the passage of a large catheter into the trachea could not be regarded as devoid of irritation, and this would militate against its frequent use in ordinary operations in the region of the head and neck. He also thought the noise of the electric motor rather distracting.

MEDICAL SOCIOLOGY.

THURSDAY, JULY 25TH.

President, Dr. J. C. MCVAIL (Glasgow).

For the first part of this day's session the section of Medical Sociology joined the section of State Medicine to discuss administrative measures in dealing with phthisis, but subsequently some interesting papers were read on the subject of

Administrative Provisions for the Prevention of Malingering.

Dr. A. GORDON GULLAN (Liverpool), who read the first paper, remarked that malingering was a subject of increasing importance to the community at large and to the medical profession owing to the growth of legislation during the last ten years, by which the working man under the Workmen's Compensation Act received benefit when injured, and now by the National Insurance Act sick benefit when ill. Every member of the profession in active practice, whether a general practitioner, physician, surgeon, or specialist, would agree that the tendency to malinger, and malingering, was on the increase. The sick and injured working man was now so well protected by law when disabled that the stimulus of the necessity to return to work was to a large extent removed, and if the period of inactivity lasted for some months the desire to work became increasingly less, and that to find an excuse or imagine an ill increasingly greater. The words of the Bible that "the labourer is worthy of his hire" had been extended in the twentieth century to "the disabled man is worthy of half-pay." This could be granted, provided the man was really disabled; but how often it was found that a man who had recovered from an injury, or who had never had a serious one, refused to work. Under the Insurance Act he had no doubt the same inertia would occur in cases of sickness. The difficulty and importance of making a diagnosis in malingering could not be over-estimated, and just as the physician never diagnosed hysteria until he had excluded, by the most careful examination, all forms of organic disease, so should all possible injury and its effect be excluded before the diagnosis of malingering was made. The difficulty of the detection of this condition was greatly enhanced at the present day owing to the custom of the modern press of describing in detail ailments and their effect, and by the working man being often well coached up in the symptoms of some brother workman who had been disabled. The definition of malingering as "feigned sickness in order to avoid duty" was too narrow to meet present-day requirements. It must be extended to include the words "and obtain pecuniary benefits," and also it must include two other groups of cases, one in which there was true sickness or disablement, but of which the cause was feigned; the other where sickness or disablement was produced or prolonged in order for the individual to avoid work and so obtain pecuniary benefit. The most difficult cases to eliminate from malingering were those of true traumatic neurasthenia, or nervous shock. In malingering one feature was invariably present—the patient was emphatic as to his inability to work. The physician must first gain a concise history of the accident and subsequent treatment, and an account of the alleged symptoms; these he would usually find outweighed the history he had just taken. Then by a very careful physical examination, and by many tests and observations, it would be found that the man was not suffering from any organic or functional disorder. The medical man's tact and ingenuity were required to detect that the alleged disablement or symptoms described did not in reality exist. The only administrative measures capable of preventing the growing evil of malingering entailed systematic and searching medical examinations and reports and periodical re-examinations. Medical examinations of this class were best made by special practitioners well acquainted with such work, and not by the doctors in attendance, for obvious reasons—that if the attending doctor diagnosed malingering only odium and distrust, and possibly trouble with any officials concerned, would result. The examining medical officer should have (1) a wide knowledge of the habits and mode of living of the workers; (2) a long and wide experience; (3) tact to avoid arousing suspicion; and (4) a special acquaintance with all the tests and methods of observation which could be applied to the nervous system in order to differentiate the true from the false. These medical examinations, where possible, should be made in consultation with the doctor in charge of the case, and certainly with his cognisance and approval. Dr. Gullan disputed what appeared to be the view of Mr. Lloyd George, that there were no scientific tests worthy of being used for the detection of malingering. In a book issued by him explanatory of the Insurance Act, Mr. Lloyd George said:—

> You cannot check malingering by doctors' certificates. There is no doctor but will tell you there are certain diseases in which it is quite impossible to say whether a man is shamming or not. Therefore you must depend upon each member being almost a detective to spy on his associates.

It was quite impossible for malingering to be held in check by the workers themselves. Without deprecating the evidence or information received from members of a friendly society about the habits and actions of a fellow worker, which would certainly aid the medical man, Dr. Gullan insisted that the diagnosis of malingering must always rest with the doctor. It was impossible to arrive at any judgment or decision without the verdict of a searching scientific and medical examination. It was almost a daily occurrence for medical men to find the sympathy of the lay public entirely misplaced—the seriously damaged being judged with suspicion, whilst the malingerer was thought to be very ill. The malingerer was constantly sent with a recommendation by the insurance man, the claims manager, or others well versed in the ways of the injured working man and whose sole interest it was to check malingering. If the malingerer was able to mislead comparatively expert laymen, how much more easily would he mislead his brethren. The following administrative measures should be adopted:—(1) Detection must first rest with the medical officer, who in most cases was best competent to know whether organic disease was present; (2) a band of medical men specially versed in the detection of these cases should be appointed in each district as medical referees to whom medical men in attendance would be able to report;

and (3) members, through officials of Friendly Societies, should be able to ask for a report from a medical referee in any case in which it was deemed advisable.

Dr. M. DEWAR (Edinburgh), in his paper, said that malingering was fairly common and widespread among the wage-earning classes who were members of Friendly Societies. It was rare, though not unknown, among salaried officials. Remote causes were that a highly developed and conscientious sense of right and wrong was not a characteristic of a large number of working men, and also that they suffered from a relative inability to grasp the true meaning of insurance against illness. A great many men did not realise that an undue drain on the funds meant higher premiums. On the other hand, there was the mean personal desire, overriding the principle of insurance, to get back to their own pockets as much as they could in return for what they had contributed, or for injury received. Immediate causes of malingering were: (*a*) a genuine belief in the continuance of their illness or disability; (*b*) a fear generated by a previous illness or accident; and (*c*) laziness, with a desire for a week or two's rest. There were two classes of malingerers: (1) those who imagined they were really ill when they were not, who exaggerated minor into major ailments; and (2) those who persistently pretended they were ill when they knew that they were not, with the object of being lazy. One was struck with the small percentage of genuine cases of illness which might inadvertently be put down as cases of malingering. He had known one or two such cases, but with ordinary care in diagnosis they might be looked upon as a negligible quantity. A few years ago the Twentieth Century Equitable Friendly Society, convinced that there had been a large leakage of the funds due to malingering, and having learnt that their medical officers hesitated to denounce and report cases owing to the fear of being dismissed by the local lodges, resolved that instead of the local lodges being entrusted with the power of appointing and dismissing their medical officers the lodges should have the privilege of nomination only, the appointments and dismissals being made by the Grand Lodge itself. This method had given the medical officers a free hand, and in the following year £5000 were saved. He felt sure that if medical men had a free hand to deal with malingerers they would soon be made an unknown quantity. Dr. Dewar suggested that there should be weekly or fortnightly reports by the local practitioners, as under the Compensation Act; whole-time working men inspectors; the appointment of whole-time medical referees; a rigid adherence to the restrictions usually enforced by Friendly Societies in respect of members drawing sick benefit; sick benefit in no case to exceed three-quarters of the average earnings, and the adoption of a method of reducing benefit as in the Compensation Act. He also dealt with the adjustments necessary to enable a patient to do light work when fit for this, but not for full work. On the other hand, extreme caution should be used in giving an adverse verdict. Cases had occurred, and would continue to occur, where there were no objective signs and there was every appearance of malingering, but in spite of every care and every method of testing death had occurred, perhaps after work had been resumed, and a necropsy had shown that serious disease had actually existed.

Mr. EDGAR A. BROWNE (Liverpool) remarked that as this country had no compulsory military service it had been comparatively free from the severe form of ocular malingering that had long been prevalent in continental nations. Since workmen's compensation became law, however, an accident to an eye had been regarded as an asset to be carefully exploited. Where there was a slight or no injury to vision severe damage would be alleged, to procure a lump sum or payment of a satisfactory proportion of wages without work for a long period, if not for life. The frequency of certain forms of claim led to suspicion that methods of deceit were handed down from one to another. Mr. Browne argued that when cases came into court which were entirely medical in character they could not be dealt with by the ordinary legal equipment. It was of small value for barristers to ask expert witnesses questions when the questioners had no idea of the correctness or inaccuracy of the answers. One of the first reforms needed in dealing with fraudulent claims as to injuries to vision was the employment of medical experts in estimating the causes and consequences of a given accident. The more scientifically minded the examiner the less likely was he to recognise the conjuror's tricks of pretenders. In all cases where malingering was likely to form an element the medical examination should be in the nature of a consultation held at the instance of, and for the guidance of, the court. The joint reports, with the points of agreement and disagreement classified, would be submitted to the court through the medium of the medical referee, who should, if necessary, take the position of arbitrator between differing medical men and act as adviser to the judge. He should be a substantive official and not, as now, only occasionally employed. In genuine cases a medical referee would be a great help to the claimant, and in cases of fraud a most powerful aid to justice.

Dr. THOMAS BUSHBY (Liverpool) stated it was his experience that many malingerers selected some disease and read up the symptoms, becoming quite expert. He knew of one man who feigned several diseases in turn; he went to the public library and read up his complaints. This class of malingerer was often detected because he knew so much about his supposed illness.

Dr. R. R. RENTOUL (Liverpool) expressed the opinion that the percentage of malingerers to the working population was very small.

Dr. R. WALLACE HENRY (Leicester) expressed the same view as regarded cases of pretended illness. He thought the principal form of malingering was the one in which the individual who was really sick adopted some means of prolonging his sickness. He hoped that under the National Insurance Act strict regulations would be enforced, and patients disobeying medical orders would be debarred from sick pay. As regarded medical referees, in the new Leicester Public Medical Service provision was made for a right of appeal to honorary members of the service.

Dr. J. BRASSEY BRIERLEY (Manchester) expressed the opinion that malingering was considerably encouraged by employers insuring their workmen, and so not being financially interested in their absence.

Dr. HENRY HARVEY (Liverpool) thought that payment to medical men on a capitation basis would do very much to stop malingering. He did not agree that employers encouraged malingering, but he thought insurance companies did, because they compounded with a malingerer rather than fight the case.

The PRESIDENT emphasised the importance of a medical man who was called to a case having an absolutely unprejudiced mind. Otherwise once or twice in his life he would make a mistake which would cause him infinite regret afterwards.

BACTERIOLOGY.

THURSDAY, JULY 25TH.

President, Professor JAMES RITCHIE (Edinburgh).

Mr. E. C. HORT and Dr. W. J. PENFOLD (London) contributed a paper on

The Study of the Pyrogenetic Properties of the B. Typhosus,

in which they suggested that the pyrexia in typhoid fever in the human subject was an anaphylactic phenomenon, sensitisation taking place during the incubation period, and explained that their experiments had comprised observations upon B. typhosus with a view to determining whether the fever produced by this organism was due to lysis of the bacillus itself or to the products resulting from the action of the organism on the medium on which it was grown. They reviewed the previous work on the subject, and showed how the value of the results had been discounted by recent observations on saline fever, &c. They carried out their experiments upon the rabbit by means of intravenous injections of B. typhosus suspended in either pure distilled water or nutrient broth. All the recorded temperatures were taken in the rectum with Kew certified thermometers. In the preliminary experiments they found that the intravenous injection of pure distilled water caused a slight fall in temperature, and of sterile broth a very slight rise in temperature. In some series of experiments the animals were injected with 1/200th of the respective body weights of distilled water to which rising quantities of typhosus broth had been added, with the result that the higher temperatures were recorded in those animals receiving the smallest dose of typhoid broth. With the largest doses

of typhoid broth the temperature showed a small initial rise followed by deep notches suggesting the presence of a depressor body in the pyrogenic material. When a constant quantity of typhoid broth in rising quantities of water (say, 5 to 30 c.c.) was injected it was found that with the increased dilution small doses of typhoid broth gave increased fever, but the largest quantities of water caused profound depression and frequently death. Efforts to remove the pyrogen from the bacilli by washing with distilled water, saline, or broth were unsuccessful. The B. typhosus pyrogen proved to be thermostable, withstanding completely the autoclave and boiling. Oxidation on standing or on the addition of hydrogen peroxide, however, quickly removed the pyrogen. Mr. Hort and Dr. Penfold were unable to confirm the results recently published by Friedberger and Mita on the anaphylactic effect of intravenous injection of foreign protein into guinea-pigs, and pointed out, in view of their own results, that the evidence of these observations could not be taken seriously. The evidence they had obtained failed to support the theory that sensitisation plays any important part in the causation of the long interval in typhoid fever between infection and onset of high temperature.

The PRESIDENT, in commenting upon the importance of the work by various observers with regard to the possibility of pyrexia being a reactive phenomenon rather than a toxic, emphasised the necessity for careful technique, and more especially in the recording of the temperature on laboratory animals.

Mr. H. W. ARMIT (London) said that he considered rabbits less suitable animals for anaphylactic observations than guinea-pigs. In his own experiments with serum or pure protein he found that the rabbit could be sensitised, but that at the subsequent inoculation three weeks later the only evidence of anaphylaxis that could be obtained was most generally a fall in blood pressure.

The PRESIDENT said that the result of his experiments differed from those of Mr. Armit, since his rabbits in Edinburgh, injected for the second time on the tenth day, gave marked evidence of anaphylactic shock, wherein they appeared to differ from the rabbits used in London.

Dr. PENFOLD briefly replied.

Dr. J. CRUICKSHANK (Pollokshields) read a paper on

The Direct Cultivation of Tubercle Bacilli from Tuberculous Tissues.

He explained he had used the antiformin method introduced by Uhlenhuth for the disintegration of infected material. The original antiformin consisted of sodium hydrate 7·5 per cent. with sodium hypochloride in such amounts that 100 grm. of the mixture liberated 5·3 grm. of chlorine gas; but equal parts of liquor sodæ chlorinatæ (B.P.) and 15 per cent. sodium hydrate gave excellent results. When suitable antiformin was employed the process of disintegration was invariably accompanied by the liberation of gas. At first used only for the detection of tubercle bacilli in sputa which had yielded negative results with ordinary smear preparations, it was soon applied to the direct cultivation of the tubercle bacillus from tuberculous material; since the disintegrating effect of antiformin produced solution of tissue cells and pyogenic bacteria long before the tubercle and other acid-fast bacilli were injuriously affected. The method adopted by Dr. Cruickshank in obtaining direct cultivations from tuberculous material was by mixing the sputum, urinary sediments, and other fluids, with three or four times their volume of 15 per cent. solution of antiformin with occasional vigorous shaking, usually for about two hours, until a homogeneous solution resulted. Solid tissues were cut into fragments and rubbed up in a mortar with successive small amounts of antiformin. In either case the antiformin mixture was centrifugalised, and the sediment washed twice with sterile water or saline solution, and then inoculated on to plain egg medium (Dorset), glycerine egg medium (Lubenau), or animal tissue (Frugoni). The results were very satisfactory. On glycerine egg medium growth appeared in most cases in from 12 to 24 days. Sometimes growth occurred after so short an incubation period as from three to five days. All the cultures obtained were of the human type. In Dr. Cruickshank's hands glycerine broth usually was not a satisfactory medium for the isolation of the tubercle bacillus, but, like other discoverers, he had occasionally prepared batches of this medium which gave good working results. Later subcultures, however, grew fairly well on this medium.

Dr. H. G. M. HENRY (Sheffield) referred to the annoyance caused by the failure of antiformin to destroy sporing organisms, yeast cells, and moulds.

Dr. J. C. G. LEDINGHAM (London) said that in the routine examination of sputa at the Lister Institute the use of antiformin had only enabled them to detect tubercle bacilli in six specimens which had previously given a negative result when examined in the ordinary film preparation.

Dr. CRUICKSHANK, when replying, said that he had not encountered any difficulty with sporing organisms or moulds whilst using antiformin, and that he had obtained direct cultures from 60 out of 70 specimens of sputum examined.

Dr. HENRY read a paper on

Meningitis due to Hæmophilic Organisms.

He described a series of cases from the cerebro-spinal fluid of which he had obtained a Gram-negative, influenza-like bacillus, comparable to that described by Professor Ritchie in a series of cases in Edinburgh, the full text of which, he said, would shortly appear in the *Journal of Hygiene*.

The PRESIDENT remarked that he had been able to obtain only very scanty growths of the organism from his cases upon ascitic agar. He had not employed media containing hæmoglobin. He suggested that there was probably a very large group of closely allied bacilli, of which the B. influenzæ was the type; and, further, that the pathogenic effects of B. influenzæ were not invariably toxic, but might be septicæmic in character more frequently than was at present believed.

Professor RITCHIE then vacated the chair, which was taken by Professor J. M. BEATTIE (Sheffield), a Vice-President of the section.

A conjoint paper by Professor BEATTIE and Dr. A. G. YATES (Sheffield) was read by Dr. Yates entitled

Variations in the Morphological Characters of Bacteria and their Reactions with Sugars under Different Conditions.

The authors said that 38 strains of streptococci derived from different sources had been inoculated into animals, and divided on the basis of their pathogenic effects into (*a*) 15 strains producing septicæmia, (*b*) 13 rheumatic arthritis, and (*c*) 9 which produced no effect whatever. If the classification of Gordon (based on sugar reactions) was adopted, the first group originally contained 9 varieties, the second 6, and the third 5. After repeated subcultivations upon artificial media, the inulin reaction became modified in some—that is to say, was positive where it had previously been negative, or *vice versâ*. After passages through animals more of the reactions became altered, so that the authors concluded that the sugar reactions of an organism depend more upon the environment in which it has been living than upon essential, inherent properties. Working first with the bacillus necrosis, they had found it possible to modify the morphological appearances, by altering the conditions of growth, especially in relation to time and temperature. Similar observations upon various members of the coli-typhoid group gave precisely similar results. The points dealing with morphological variation were illustrated by a comprehensive series of micro-photographs.

Professor GEORGE DEAN (Aberdeen) expressed the opinion that the work of Professor Beattie and Dr. Yates had shown conclusively the fallacy of either giving or taking authoritative opinion based upon the microscopical appearances presented by a film in which some of the conditions of culture were unknown; and commended the practice of examining cultures at short intervals rather than at 24-hour intervals only.

Dr. PENFOLD wished to know whether in plating the organisms used in this investigation a number of colonies, say ten, had been picked off the plates from each strain, and, if so, how many of these colonies had subsequently given rise to variant reactions.

Professor BEATTIE replied that this had not been done.

Professor DEAN then read a

Note of a Case of Pyæmic Actinomycosis with an Actinomycotic Endocarditis.

He said he had been unable to find more than one recorded case of actinomycotic infection of the endocardium (the second case recorded by Ponfick, in which there was an actinomycotic focus in the right auricle and ventricle, and another in the left ventricle). Abbée, König, Harbitz, and Grondhall had observed cases of actinomycotic myocarditis. In the majority of cases actinomycotic infection occurred by continuity, and, as many

observers maintained, by continuity only, save in those cases where a blood-vessel was perforated. The case described by Professor Dean was that of a farm servant, aged 22, who was admitted to the Royal Infirmary, Aberdeen, in July, 1910. A gangrenous appendix was removed and the patient was discharged, relieved, at the end of July, but readmitted in October for an abscess of the chest wall, which was opened in December. In January, 1911, pneumonotomy, after partial excision of three ribs, was performed for an abscess of the right lung. The patient died in April, 1911. Actinomycotic foci were found in the liver and right lung, and in a small nodular vegetation about the size of a split pea, which was removed from the auricular aspect of the mitral valve, about one-eighth of an inch from the free margin. The appendix originally removed was sectioned, and although certain Gram-positive filaments were found, no rosette arrangement could be made out; so that although the history of the case and the microscopical appearances make it probable that the appendix was the primary focus, complete evidence of the original site of infection was lacking. Extension of the infection probably occurred by the portal vein to the liver, and through the diaphragm or chest wall to the lung, and thence to the heart.

STATE MEDICINE.

THURSDAY, JULY 25TH.

President, Dr. A. K. CHALMERS (Glasgow).

The Section of State Medicine on this day was occupied in a joint discussion with the Section of Medical Sociology on

The Administrative Measures in Tuberculosis.

This discussion was opened by Dr. J. C. MCVAIL (Glasgow), who said that the object of the discussion was to determine how to safeguard the welfare of infected persons and to protect those exposed to the risk of serious infection, from hereditary tendency, or from the conditions under which the people lived. This was not a discussion regarding sanatorium benefit or the Insurance Act. The infection of phthisis was independent of both. He referred to administrative work in Scotland rather than in England, and said that it would be the duty of the medical officer of health to ascertain the facts regarding each case. It would be very desirable, if possible, that he should have before him every information in greater detail than was furnished under the ordinary notification certificates. Dr. McVail laid particular stress on the following administrative measures directed against tuberculosis: (1) The Insurance Act; (2) the Research Fund; (3) the Notification of Tuberculosis; and (4) the Housing Act, especially Section 15, dealing with the closing of insanitary houses, and Section 17, dealing with the renovation of defective houses. It would be the duty of the local sanitary authority to examine every working-class house within its domain, and if the owner did not remedy defects the sanitary authority could do so. All these things were working together for good, but one factor still wanting was proper legislation with regard to milk.

Dr. JAMES NIVEN (Manchester) followed with a paper on

New Developments in Tuberculosis.

He outlined the duties which would have to be performed by the medical officers of tuberculosis dispensaries and of sanatoriums, as well as the special functions of medical officers of health in dealing with this disease. He gave details of what was being done in Manchester in connexion with the treatment of tuberculosis, and stated that whereas in the half year ending December, 1911, the cases of tuberculosis of the lung notified to the medical officer of health by private practitioners numbered between one-fifth and one-sixth of the total, in the first half of 1912 under the new order they numbered between one-half and one-third. He estimated that at present the institutional treatment of tuberculosis in Manchester cost the guardians, in round figures, £26,000, voluntary institutions £15,000, and the corporation £8000, total £49,000. There were no means of estimating how much was paid to practitioners, but it must be a large sum. There would be a large amount of money required for administering the sanatorium benefits under the Insurance Act, and it was to be observed that the local community would be called upon to defray much more than half the excess expenditure on tuberculosis, since they would have to provide for the treatment not only of insured but also of non-insured persons. There would not be much option in the matter, since the candidate for municipal honours who declined to pay for sanatorium benefits would have to give his reasons. There was not the same security that the Treasury would continue to defray its half of the excess expenditure on insured persons. It was to be hoped that local authorities would take up resolutely and judiciously the great work which Parliament had laid upon them.

Dr. MARCUS PATERSON (Cardiff) wished to confine his remarks to the clinical aspect of the case. He entered a protest against the use of the word "consumption" as he found it was much easier to deal with patients, especially in incurable cases, when the word "tuberculosis" was used instead. With regard to diagnosing early cases of phthisis, he thought it was a mistake to rely too much on physical signs, preferring rather to take into account the resisting power of the patients to the toxins of the disease. Surgeons preferred an empty abscess to one full of pus, and he thought a cavity in the lung was not such a bad thing as it was supposed to be. He looked upon the prevention of tuberculosis as similar to the looking after a growing crop. If they could produce a healthy crop of children and keep them free from infection the problem would be solved. Medical officers of health were doing all they could to look after school children, especially as regarded the care of their teeth, which was most important. As to the question of mixing cases of pulmonary tuberculosis with surgical tuberculosis cases, he considered that there was a good deal more risk of infection from surgical than from pulmonary cases, as the same care was not taken in dealing with tuberculous pus as in dealing with tuberculous sputum.

Dr. F. RUFENACHT WALTERS (Farnham) considered that there should always be two sections in every large sanatorium: a clinical section, in which patients who were feverish could be properly nursed and treated; and an ambulant section, for those who required graduated exercise and physical training generally. Attached to the clinical section there should be a pavilion for the less hopeful and presumably incurable cases whenever the sanatorium was within easy distance of the town or home. He adopted Dr. A. C. Inman's division of cases of pulmonary tuberculosis into (1) the febrile at rest; (2) the afebrile at rest—ambulant febrile; (3) ambulant afebrile—febrile at work; and (4) afebrile even at work. The indications for treatment would be as follows. All those who were febrile when at rest, or in whom there were complications, or a pulse-rate over 90, or extreme malnutrition, required nursing sanatorium conditions. Those who could take exercise without becoming feverish and without raising the pulse-rate to over 90, and whose nutrition was reasonably good, would require treatment at a dispensary or in the ambulant section of a sanatorium, or merely suitable quarters in a health camp, or reformed home conditions, according to circumstances. He agreed with Dr. Paterson that extensive disease with cavitation was not necessarily an indication for rest or a contra-indication against hard work, whereas scarcely recognisable lesions with marked fever or much raised pulse-rate called for careful treatment at rest. In order to recognise the existence of slight fever it was necessary to take the temperature several times a day, and if taken in the mouth it required at least a quarter of an hour, with the mouth shut and the face protected. An accurate rectal temperature could be taken in five minutes, but necessitated a dressing-box for each case.

Dr. F. E. WYNNE (Wigan) said that for the councils of county boroughs this question was largely one of finance. There was not a municipal election address issued in the kingdom that did not contain the blessed words "efficiency with economy." While those present might be convinced that the expenditure of money on the prevention of tuberculosis was going to promote this ideal, it was not so easy to induce the councillor who had not the same knowledge as the medical profession had to make the effort of imagination necessary to realise it, and they could hardly expect him to educate a majority of his constituents to the same level of political sagacity. The Interim Report of the Departmental Committee had laid it down as an essential of any scheme that it must provide for the whole of the tuberculous population. For these purposes there was a capital

sum available of 1½ millions, and a revenue for maintenance and administration amounting to 1*s.* 3*d.* per head of the insured population. The suggestions of the Interim Report were that the available capital should be distributed to local Insurance Committees on the basis of providing four-fifths of the capital cost of the establishment of tuberculosis dispensaries, three-fifths of the capital cost of establishing and equipping sanatoriums, and grants of an amount not specified in aid of the capital cost of altering or adapting existing hospital accommodation. Dr. Wynne gave figures for the expenditure of a county borough of 100,000 inhabitants, showing that the amount to be provided out of the rates would be at least equal to a rate of 2½*d.* in the £. He himself believed that a rate of 1*s.* in the £ would be well and economically spent if it got rid of tuberculosis, but he feared that the councils would refuse to burden their rates to that extent, and that schemes would accordingly be scamped and inefficient. The prevention of tuberculosis was a national concern, and the expense involved ought to be met to a greater extent than it would be under the Insurance Act by subventions from the national exchequer.

Dr. S. J. C. HOLDEN (St. Helens) described the powers obtained in the St. Helens Corporation Act, 1911. If the medical officer was satisfied that a patient suffering from pulmonary tuberculosis was in an infectious state, and living under conditions that precluded proper precautions being taken to prevent the spread of infection, he might make application to a court of summary jurisdiction. Such court, upon oral proof, might order the removal of such patient either to a suitable hospital provided, or if a parochial case to the Poor-law infirmary, three days' notice being given to the patient of this intention. The corporation might in its discretion make good any financial loss falling upon relatives or dependents of such person, and the patient might apply for a rescission order after six weeks' detention. This class of patients would probably never obtain sickness benefit. They were not likely to be admitted into approved societies, and the prospect of their receiving permanent invalidity benefit was a product of the imagination. He suggested that there ought to be coöperation between employers of labour, organised charities, and the public health authorities for the provision of selected labour bureaus which could be worked as branches of the Labour Exchanges.

Dr. W. M. CROFTON (Dublin) insisted on the importance of house disinfection. According to Vienna figures, 94 per cent. of children aged 14 years were infected, but only 16 per cent. developed tuberculosis. If that number could be freed of the disease the problem would be solved. This could be done by preventive inoculation with tuberculin. Under ideal conditions all children ought to be inoculated, but at any rate all children of tuberculous parents and members of families in which tuberculosis had occurred should receive preventive inoculation. He mentioned different drugs which had been used in the treatment of tuberculosis, of which organic sulphides and iodides appeared to be the most useful. Intravenous injections of iodoform had given the best results in his hands.

Dr. R. R. RENTOUL (Liverpool) suggested that the preventive injection of tuberculin might have injurious effects on other parts of the body. As municipal fever hospitals had not done much good, in his opinion, he thought the public would take the same view of the institution of sanatoriums for consumption.

Mr. H. L. HEATH (Ipswich) thought there was a tendency on the part of the public to allow sanatoriums to dominate their thoughts. He would prefer to deal with the pre-tuberculous child, whose conditions of health and environment were such as to predispose to tuberculous infection, and he would also deal with infected individuals who had reached a condition which made them a potential danger to the community. He considered that unless the healthy milk part of the problem was more vigorously tackled than it had been in the past they would be neglecting one of the most important measures of prevention

Dr. J. BROWN (Bacup) said he would like the Government to give him 5*s.* a week for each of his tuberculous patients rather than to send them to a sanatorium house at the sea. He thought it was better to treat patients in their own homes than to send them to sanatoriums.

Dr. J. BRASSEY BRIERLEY (Manchester) vehemently urged the importance of making every home a sanatorium. He did not believe in sending patients to sanatoriums and then allowing them to go back again to their own insanitary homes.

Mr. E. SERGEANT (Preston) said that he could not agree with the opinions expressed by so many speakers as to the inutility of isolation hospitals, and therefore the probable usefulness of sanatoriums, and he wished to enter a protest against such opinions, as he had been receiving money from the public for 40 years for the institutional treatment of infectious diseases. With regard to phthisis, sanitation had been in various ways preventing this disease. Measures had been taken for improving the homes of the people. It was most important to ensure an absolutely clean and pure milk-supply, and there should be systematic examination of all cows in districts where phthisis prevailed. He said that they would have to spend £60,000 in the administrative county of Lancashire.

Dr. A. G. GULLAN (Liverpool) said that he had found astonishing results from the medical treatment of tuberculosis, and expected to see good results from home treatment.

Dr. H. COOPER PATTIN (Norwich) drew attention to the desirability of providing night shelters in dealing with tuberculosis. There were institutions provided by the local health authorities at which tuberculous patients who could not have a suitable separate bedroom at home could be accommodated under hygienic conditions. Such shelters had been set up and found useful in Canada, and he was recommending their adoption to his authorities.

Dr. J. H. TAYLOR (Salford), Dr. A. STEWART (Queensland), and the PRESIDENT also took part in the discussion, and Dr. MCVAIL and Dr. PATERSON replied.

OPHTHALMOLOGY.

WEDNESDAY, JULY 24TH.

President, Mr. EDGAR ATHELSTANE BROWNE (Liverpool).

The PRESIDENT gave a hearty welcome to the many ophthalmologists who had assembled to meet them in Liverpool, and particularly to those guests who had come from abroad, some of whom bore names that were as household words. He ventured to think that their programme was one that would increase their interest in British ophthalmology.

Mr. GEORGE COATS (London) opened a discussion on

Iridocyclitis with Special Reference to Pathology.

Mr. Coats said he proposed to suggest discussion of certain points of this wide subject. First, of certain recent views on auto-intoxication in relation to eye disease; then of that exceedingly chronic form of cyclitis which is associated with heterochromia and cataract; and last, of certain points connected with sympathetic ophthalmitis. There was a marked tendency to seek the cause of chronic iridocyclitis in poisoning from septic teeth or the intestinal canal. These positions were easy to assume, but difficult to prove or disprove. Since both were exceedingly common conditions, he asked why iridocyclitis was relatively so rare. Doubtless the particular resistance of the individual explained many exceptions. In recent years the presence of indican in the urine had been taken as proof of the presence of intestinal putrefaction, but the test was only of use when there was a persistently increased reaction. A form of extremely chronic cyclitis was that in which there was keratitis punctata associated with heterochromia and cataract, the affected eye having a lighter coloured iris than the normal. Various views were put forward to account for the lesser pigmentation of the diseased eye—either that the pigment was bleached in disease, or that it was a condition original in the patient and indicated either a pure *lusus naturæ* or a congenitally abnormal eye with a weaker resistance to disease. Reviewing these theories, Mr. Coats's view was that the loss of pigment was the effect of the cyclitis, even though history might indicate that it was long antecedent to the appearance of the disease. Cyclitis was so chronic, its onset so insidious, and the first appearance of precipitates required such careful examination to find, that the early discovery of a pale iris was no matter for surprise. Further, that the bleaching was the result of the disease was strongly supported by the fact that similar bleaching was found in interstitial keratitis and chronic glaucoma. Next, he wished to raise a discussion on another type of chronic iridocyclitis—"sympathetic ophthalmitis."

Two points seemed likely to be established by modern research: that the disease was due to a living organism, whether bacterium or protozoon, and that this organism reached the second eye, not by the nerves or orbital veins, but by the general circulation. This implied a specific affinity of poisons towards certain tissues, but it was no more difficult to understand than the specific affinities of certain drugs—e.g., strychnine. Recently Elschnig had attributed the disease to anaphylaxis, a reaction which had been proved of grave import in the injection of repeated doses of foreign albumins into guinea-pigs. The suggestion was that with the breaking up and resorption of uveal pigment in the injured eye a hypersensitiveness of the body generally, and more particularly of the homologous organ, the other eye, was produced. Elschnig supposed that this condition could not become effective except in the presence of some constitutional anomaly—e.g., nephritis, diabetes, or auto-intoxication, or a minute lesion in the hypersensitive eye. Part of this hypothesis was obviously at fault, for it was within the experience of them all that the disease occurred in healthy robust persons. He also wished to call attention to some cases of very mild sympathetic inflammation, showing nothing more than a little irritation and a few spots of precipitates in the uninjured eye. Were these truly cases of the disease? And if so was there any pathological criterion whereby a certain diagnosis could be arrived at? On the last point he considered the best delineation and critical analysis of the histology of sympathetic infiltration was that of Fuchs. His own experience led him to believe that the most characteristic feature of all was the widespread of the infiltrations; usually the whole of the uvea was involved, even including the choroid. This was in marked contrast to the most severe infective iritis.

Mr. A. W. ORMOND (London) said he wished to consider rheumatism and gout as etiological factors in iritis. They were as yet ignorant of the real causes of either of these conditions. From the evidence at his disposal he concluded that the connexion between acute rheumatism and iritis was practically *nil*. At his own hospital in the last ten years there had been 1163 cases of acute rheumatism with no iritis. Presumably other institutions received equal numbers of these cases, and yet he found that only two cases of iritis had been noted in that time, and in these there were dubious features. In chronic and subacute rheumatisms many and complicated features entered, problems of secondary infections with which the iritis might be associated; occasionally one of these cases simulated acute rheumatism. Gout as a causative factor of iritis had, in his opinion, still less to recommend it. It seemed that evidence tended to the view that gout was due not to the presence of micro-organisms in the joints or tissues, but to toxins elaborated by bacteria in the gut. If that were true, then it followed that toxins alone could produce an acute arthritis, but for such a contention there was no support. He considered that iritis and iridocyclitis were due invariably to the presence of micro-organisms in the uveal tissues, and that these tissues were very susceptible to invasion by the spirochæta pallida, tubercle bacillus, gonococcus, various cocci, and the bacilli of the colon and of influenza. These tended to produce purulent inflammations, but in favourable circumstances inflammations of lesser degree occurred when organisms were metastatically deposited in the uvea from the blood stream.

Professor SNELLEN (Utrecht) said that one of the difficulties arose from the impossibility of determining whether in any iridocyclitis the iritis or the cyclitis was the primary condition. Fuchs had enunciated the view that precipitates on the cornea certified the presence of a cyclitis. Concerning the peculiar character of the distribution of these precipitates, he discussed the view of Fuchs that it was caused by the rotation of the eye, but he himself preferred to consider it as the effect first of a chemiotaxis drawing the cells into the anterior chamber; and, lastly, of gravity. He thought that there must be some toxin in the conjunctiva that caused the cells to advance into the anterior chamber.

Mr. CLAUD A. WORTH (London) agreed that there was no sufficient evidence for the existence of a true rheumatic or gouty iritis. In that form of which keratitis punctata was the chief symptom he thought the most important cause was chronic gastro-intestinal disturbance. He drew attention to some rare cases of quiet cyclitis which were liable to be mistaken for chronic glaucoma; there were slight increase of tension, some dilatation of the pupil, and some circumcorneal hyperæmia, perhaps dull aching pain, but no loss of field or increase of the blind spot. These cases could be detected only by the repeated and most careful examination with the corneal loupe.

Mr. J. GRAY CLEGG (Manchester) said he had had under observation a case of subacute iridocyclitis due to oral sepsis which had cleared up; but a portion of the iris was now showing signs of bleaching. This was a certain answer to the many theories as to the real origin of the loss of pigment in these cases; it was a symptom and an effect of the cyclitis. He also called attention to some cases occurring in young women in which unusually early symptoms of cataract had been found.

Mr. S. H. BROWNING (London) said the best proof of the origin of many forms of iridocyclitis lay in the success of vaccine treatment. In cases which had been sent to him for examination all the likely seats of infection had been systematically examined; in some cases apparently definite bacterial infections had been found, of teeth, gut, or bladder, and the treatment of the patient with vaccines prepared from these organisms had been fruitful of success. On the other hand, it was extremely rare to find the same, or any, organism in the aqueous; in about a hundred cases the aqueous had been examined, but in only one had any organism been found. He had made repeated examinations of urine for the indican reaction, but had not obtained useful results. The B. coli had been found in urine several times, and in every case cure had resulted from vaccine treatment.

Dr. W. H. BRAILEY (Brighton) said he did not agree with Mr. Ormond that toxins could not cause iridocyclitis. He thought that these were the common factors in the causation, although it was confessedly difficult to prove it at present.

Mr. T. HARRISON BUTLER (Coventry) drew attention to certain anomalies which were difficult of explanation. In Palestine oral sepsis was a gross and constant symptom, but iridocyclitis was extremely rare. Rheumatic iritis he considered a myth. Many of the supposed cases appeared to be due to septic infection or to tuberculous toxæmia. That a toxin could produce an iridocyclitis he had no doubt; how else could the untoward symptom of interstitial keratitis following the instillation of tuberculin for Calmette's reaction be explained, or how did a corneal ulcer produce hypopyon iritis? Malaria, which had been spoken of as a cause of iritis, was rife in Palestine, yet eye symptoms were not increased. He did not think that constipation was in itself an exciting cause; there must be some colitis for it to be effective.

Dr. GEORGE MACKAY (Edinburgh) said the general agreement as to the negative results of the examination of the aqueous for organisms seemed to him good evidence for the toxic origin of many of these inflammations. The examination of the phagocytic index of patients for various common organisms was frequently a valuable indication for treatment; he cited cases in which the B. coli had been indicated and for which treatment had been successful.

Mr. N. BISHOP HARMAN (London) said that much had been made of the apparently successful experimental production of iritis in animals by the injection of streptococci of rheumatic origin. He had seen some of these cases, and his inclination was to consider that the iritis produced was more of a pyæmic condition than akin to any iritis common in man. The association of septic conditions of the mouth and gut with iridocyclitis was very frequent, but these septic conditions were so exceedingly common that the association might seem to be fortuitous, especially as too frequently the direct treatment of the sepsis did not relieve the eye symptoms. But in the allied condition of bacilluria the results of treatment, either with urinary antiseptics or with vaccines, were so striking that one could not hesitate to accept the theory that auto-intoxication could account for iridocyclitis. Too much elaboration had, he thought, been shown by Professors Fuchs and Snellen in their explanations to account for the peculiar distribution of the precipitates on the back of the cornea. He thought simple physical phenomena gave the true explanation. In inflammation of the ciliary the aqueous was turbid on secretion, with the normal flow into the anterior chamber the silt found its natural level, and aggregation into clumps was a physical phenomenon that could be paralleled in inert precipitates. He thought the

supposition that there were toxins in the superficial tissues attracting the cells quite unnecessary. The theory of anaphylaxis had something to commend it to our attention as a claimant in the explanation of the symptoms of sympathetic ophthalmitis. It might conceivably be the primary condition that rendered the sympathising eye so susceptible to the attack of the real agent. It was particularly suggestive in those cases of violent sympathetic disease that followed rupture of one eye without apparent injury to the conjunctiva.

Dr. J. IGERSHEIMER (Halle) agreed that indigestion was possibly a cause of iridocyclitis, even though it could not be definitely proved. The production of cataract by naphthalin poisoning in animals was interesting in this connexion; it followed ingestion of the poison only into the stomach and not into the veins.

Dr. A. MAITLAND RAMSAY (Glasgow) said that defective elimination was frequently associated with persistent iridocyclitis, in which careful examination excluded all evidence of bacterial infection. Treatment directed to the increase of the quantity of the urine had been successful in that there was a subsidence of the ocular inflammation.

Mr. COATS replied.

Dr. KARL A. GROSSMANN (Liverpool) read a paper on

The Board of Trade Standard of Eyesight for Sailors.

As regards form vision, he advocated the adoption of a stringent test, and recommended that where the failure to pass was due to an error of refraction remediable by glasses spectacles should be worn. Glasses were as serviceable to sailors, engine drivers, and chauffeurs, as clothes; the prohibition of these aids to vision was an old and foolish notion fit only for the rubbish heap. Commenting on the colour tests, he considered a lantern test the only efficient one, but recommended that the colour should not be named, but only matched. In conclusion, he thought it necessary that all A.B.'s should be tested and retested, and their vision noted on their papers so that the skipper should know their capacities for look-out purposes.

Mr. J. W. BARRETT (Melbourne) said that in Australia the Board of Trade tests were considered so utterly inadequate that the principal steamship companies entirely rejected them in favour of tests of their own elaboration. For the pilot service the candidates were carefully examined by ophthalmic surgeons, and unless they had perfect eyesight they were rejected. They would not pass a candidate, no matter how good his vision might be, if he had more than about 1 D. of hypermetropia, as his distant vision would fail with the onset of presbyopia. Holmgren's test he considered next door to useless, and he mentioned the case of the loss of the P. and O. ship *Australia* at Port Philip, which was due to the pilot who had only 6/36 vision and who had previously lost a ship because he failed to see an occulting gas buoy. His excuse was the buoy was obscured by a flight of birds. Mr. Barrett thought that unless candidates were examined by competent examiners, instead of by clerks and marine officers who knew nothing of the subject, no satisfactory result could be obtained. Further, the examination must be repeated periodically.

Mr. C. DEVEREUX MARSHALL (London), commenting on the recent report of the Departmental Committee of the Board of Trade, said that the findings were most disappointing. He criticised the action of the committee in introducing a lantern of their own device instead of reporting on those existing and well known. Further, he said their own lantern on their own showing was inefficient and had been simplified so that it should not confuse the lay examiner, with the result that it no longer presented difficulties to most colour-blind candidates. He considered that if this lantern were used it was bound to prove that "lanterns" were useless. Lastly, they had supported the Holmgren's test against the considered rejection of it by almost every other authority.

Mr. T. H. BICKERTON (Liverpool) said that he was in entire agreement with Mr. Marshall in his criticism of the Board of Trade report. That document showed an entire ignorance of the conditions of the seamen.

Mr. BISHOP HARMAN severely criticised Dr. Grossmann's recommendation of the wearing of spectacles by sailors. He said that it was evident that Dr. Grossmann had either not worn glasses at sea or else that he was quite unfamiliar with the sea. His experience of spectacles at sea over many years, and under conditions ranging from fishing smacks to the bridge of large steamers, was that spectacles were worse than useless; they speedily became covered with fine drops of drift, so that vision through the lens was much worse than without any glass at all. Spectacles were a boon in their proper place and under favourable and reasonable conditions, but at sea they were an impossibility outside the cabin of a steamship.

Mr. HARRISON BUTLER confirmed the experience of Mr. Harman, and also said that a very little reduction of form vision rendered one incapable of picking up marks at sea; therefore, a high standard was requisite.

Mr. C. H. B. SHEARS (Liverpool) and Dr. MACKAY discussed the actual standard of form vision recommended, and Dr. GROSSMANN replied.

OTOLOGY.

WEDNESDAY, JULY 24TH.

President, Mr. HUGH E. JONES (Liverpool).

The PRESIDENT welcomed the section in a few words, and briefly alluded to the subject for discussion—viz.,

Acute Suppuration in the Middle Ear: its Neglect and Proper Treatment.

The discussion was introduced by Mr. R. H. WOODS (Dublin), who said that, though generally called abscess of the middle ear, acute otitis media was not technically or really an abscess, but a purulent inflammation of a mucous tract lying in a dense bone. The path along which infection travelled was nearly always through the Eustachian tube from the naso-pharynx. Acute otitis media might be of any degree of severity, varying with the variety and virulence of the infection and the power of resistance of the patient, and no hard-and-fast line could be drawn between an attack characterised only by passing erythema of the membrane with slight discomfort and the fulminating processes seen in acute fevers that destroy the middle ear in a few hours. An average case was accompanied by pain and some rise in temperature, and an inflamed and bulging tympanic membrane. These characters increased until rupture of the membrane permitted the products of inflammation to find their exit into the external meatus. Acute otitis media might subside in two or three weeks, or might become chronic. The most important question in connexion with the subject was, What constituted chronicity in otitis media? The essential objective difference between the two varieties was: (1) that the pathological changes in the middle ear connected with acute otitis were transient, while those of the chronic variety were permanent; and (2) that the pus in acute cases contained but one variety of organism, while in the chronic it contained many. The view usually held was that chronicity depended on the nature of the primary infection and the inability of the patient to deal with it, and that the permanent pathological changes were the outcome of a single-handed fight between a virulent infection and a patient who was constitutionally weakened from one or more causes. On this view the multiplicity of the organisms found in a chronic discharge was accidental. Mr. Woods held that this view was incorrect, and that the essential difference between the two classes was a bacterial one, and that while every otitis was acute at first the chronic cases became chronic by virtue of other infections being superposed on the original one. It was therefore only necessary to prevent this epi-infection in order to permit an acutely infected ear to recover completely. In other words, the treatment resolved itself into maintaining by suitable cleansing, &c., the condition of "monosepsis" by preventing "polysepsis." In the winter of 1896–97 the ears of over 300 cases of measles and scarlet fever were daily observed in the Hardwicke Hospital, Dublin. It was then concluded that the otitis of measles and scarlet fever was essentially the some process as that resulting in otherwise healthy people from so-called "cold." Mr. Woods remarked in his record of the experiments[1]:—

> It requires in an ordinary case little more than elementary cleanliness in order, by preventing this epi-infection, to insure that the inflammation may subside, and the membrane heal in a few weeks, leaving the patient little, if any, the worse in health or hearing.

Since that time it has been the routine in the Hardwicke Hospital that every patient's ears were cleansed on admission

[1] Dublin Journal, January, 1898.

with carbolic lotion 1 in 60. If suppuration occurred the discharge was removed by syringing twice daily and boric alcohol instilled. The physicians reported that of late years no patient had left hospital with the ears running. As to the management of acute otitis, in mild cases purgation and the local application of heat were indicated. If the drum was bulging myringotomy should at once be performed. If after myringotomy pain and fever did not rapidly subside it should be taken as proof that the tympanic cavity was not the part of the temporal bone chiefly affected, and whether mastoid œdema was present or not antrotomy should be performed. Diploitis should be followed, and if necessary the middle and posterior cranial fossæ opened. The proper handling of uncomplicated otitis in acute fevers ought to be as much a matter for the clinical physician as the otologist, but their education in that subject, as well as that of the practitioners they were helping to turn out, still left much to be desired.

Dr. C. RUNDLE (Fazakerley) referred to the diminished incidence of otitis media in those hospitals where the practice of routine throat and ear syringing had been abandoned, and stated that of 85 cases of otorrhœa complicating scarlet fever at the Fazakerley Hospital during 1911 70 had undergone spontaneous recovery with a complete cessation of the discharge for a period of at least 14 days before leaving hospital. Dr. Rundle, in speaking of the operative procedures recommended by Knyvett Gordon and others, disagreed with the views of those who are in favour of the early removal of tonsils and adenoids in otitis media complicating the *acute* stage of the exanthemata, and regarded the opening up of pharyngeal and faucial tissues to be totally unjustifiable in the presence of virulent strains of streptococci and Klebs-Löffler bacillus. He invited the opinion of the members as to the proceeding which they would recommend in this respect where acute otitis media supervened *late* in the course of the exanthemata. He agreed that retention of pus in the antrum indicated the necessity for antrotomy—i.e., Schwartze's operation, or, as an alternative, the operation of Heath, reserving the radical mastoid operation for those cases of acute otitis media presenting signs of intracranial disease. When, on the other hand, mastoid complications supervene upon an otorrhœa of some weeks' standing he regarded the complete operation as called for. Horse serum, preferably diphtheria antitoxin serum, was stated by Dr. Rundle to have a distinct value in otitis media complicating the acute stages of the fevers, a marked improvement in the degree of pharyngeal inflammation being the immediate result of the injection of sufficiently large doses, a partial immunity resulting which is shared by the muco-periosteum of the middle ear and antrum. The preparation of autogenous vaccine from a discharge presenting so complex a flora as that met with in otorrhœa was considered to be a matter of some difficulty, and Dr. Rundle had not been encouraged by his experience of "stock" vaccines to continue their use.

Professor G. ALEXANDER (Vienna) contributed a paper which was read in part. He advised early paracentesis under a local anæsthetic, and deprecated syringing. He went into considerable detail as to his own methods, recommending packing with strips of gauze, wrung out in benzoin, of sufficient length to soak up the discharge. When discharge became ropy peroxide of hydrogen was valuable. It was important to recognise the point of departure in the direction of chronicity.

Professor H. MYGIND (Copenhagen) divided the course of acute suppuration into two stages. If the first ran a normal course very little interference was necessary, but paracentesis was more rather than less frequent. In the second stage it was better to let well alone. He advised the use of sterilised cotton plugs until the pus began to be malodorous.

Dr. W. L. BALLENGER (Chicago) discussed chronicity and urged simplicity of treatment. He found a 12 per cent. solution of glycerine of carbolic acid useful, as also was packing with gauze strips. Drainage was important and adenoids should be removed, the time of removal being of importance to decide. Leeches in early stages and measures to promote the increase of active hyperæmia were both valuable.

Mr. C. A. ADAIR DIGHTON (Liverpool) dwelt upon the value of the naso-pharyngoscope and advised the painting of the lumen of the Eustachian tube with nitrate of silver.

Dr. W. MILLIGAN (Manchester) discussed middle-ear infection as occurring during the exanthemata or otherwise, and emphasised the importance of early paracentesis. He compared the relative merits of dry and moist treatment and of gauze *versus* wool. He pointed out that when extension to the mastoid antrum occurred, radical operation should not be done, but simple opening. Drainage was the great necessity.

Dr. P. WATSON-WILLIAMS (Clifton) agreed that the Schwartze operation was the one required.

The PRESIDENT discussed rapidity of onset and chronicity. In the acute form one micro-organism, in the chronic many micro-organisms were found.

Mr. WOODS and Dr. RUNDLE briefly replied.

Dr. MILLIGAN read a paper

On the Value of Decompression Operations in Intracranial Complications of Otitic Origin,

with special reference to the treatment of otitic meningitis.

The paper was discussed by the PRESIDENT, Professor MYGIND, and Mr. E. M. STOCKDALE (Liverpool).

LARYNGOLOGY AND RHINOLOGY.

WEDNESDAY, JULY 24TH.

President, Dr. J. MIDDLEMASS HUNT (Liverpool).

The PRESIDENT, after welcoming the visitors, said that amongst their foreign visitors were Dr. M. Hajek and Dr. Otto Kahler from Vienna, Professor Holger Mygind from Copenhagen, Dr. H. P. Mosher from Boston, and Dr. W. L. Ballenger from Chicago. Many changes had taken place in the matter of laryngology in Liverpool since the meeting of the Association in their city in 1883. Then laryngology was not recognised and there was no laryngologist in the city, but there still remained much to be done. In a city with a population of 750,000 there were no beds especially for diseases of the throat and nose in the general hospitals except in the Stanley Hospital, where there were four, and these had to be used also for cases of ear disease. He concluded with a plea for special training of the students in the subject, which, he said, could best be carried out by paid senior and junior assistants rather than by examinations.

Dr. OTTO KAHLER (Vienna) then opened a discussion on

The Differential Diagnosis of Œsophageal Stenoses.

He said the methods of investigating stenoses of the gullet had been considerably changed during the last 20 years by the introduction of X rays and direct œsophagoscopy. He dealt first with the physiological forms of stenosis. The patency of the mouth of the œsophagus, he said, varied with inspiration and expiration. In children the mouth was not so completely closed as in adults. At the level of the arch of the aorta and of the bifurcation of the trachea there was some compression. The cardiac orifice also varied with respiration. Foreign bodies in the gullet were the commonest cause of stenosis. A foreign body, such as a coin, after remaining in the gullet for a week might be recognised with difficulty by œsophagoscopy owing to the deposition of mucus. Secondary causes were strictures resulting from abrasions by foreign bodies and from swallowing caustic solutions, although the stenosis might not develop till years after the injury. Œsophagoscopy assisted in clearing up the difficulty of diagnosis from malignant disease. Scarlet fever, tuberculosis, and syphilis were also causes of stenosis. The last could be readily differentiated by means of œsophagoscopy. Tuberculous glands and an enlarged left heart caused compression, but in the lower part of the gullet stenosis by compression was rarely met with.

Mr. E. B. WAGGETT (London) dealt more particularly with the diagnosis of malignant strictures. In his experience, he said, three out of four cases were due to malignant disease. The diagnosis was therefore important. At times there was spontaneous ejection of tissue which should be examined under the microscope. The expectoration of blood was by itself no evidence of malignant disease, nor was the presence of blood on a bougie. The passage of a bougie was attended with risks, and should be condemned. He advocated the use of X rays and œsophagoscopy; by the direct method inspection of the stricture could always be made without danger other than that of the anæsthetic. The passage of a bougie through, and in front of, the tube of the œsophagoscope was not required, and was attended with risks. It was advisable to inspect only the upper part

of the diseased area. No rigid instrument should be used except under direct control and inspection. He found the right lateral recumbent position of the patient the more suitable. He concluded by urging a routine method of examination.

Dr. A. BROWN KELLY (Glasgow) discussed spasm of the œsophagus in the cardiac and epicardiac regions, and demonstrated lantern slides and skiagrams illustrating his clinical and experimental investigations.

Dr. WILLIAM HILL (London) demonstrated skiagrams illustrating the position of pouches and dilatations of the œsophagus. One case of stenosis resulting from swallowing ammonia occupied an unusual position high up in the œsophagus; generally a stricture resulting from a caustic was found lower down. He also showed skiagrams illustrating the application of radium in the treatment of malignant disease of the gullet. Spasm of the gullet, as he understood it, was always associated with pain.

Dr. J. WALKER DOWNIE (Glasgow) read a paper entitled,

Syphilis as a Cause of Stenosis of the Gullet.

Syphilis as a cause of stenosis of the gullet, he considered, had not been sufficiently recognised. It occurred in his experience in a fair proportion of cases. It was more commonly met with in women, and being due to innocence it was overlooked. One typical case was cited, in which bougies had been used.

The PRESIDENT, in reviewing the papers that had been read, regarded the œsophageal bougie as a useful instrument in some circumstances, and one that should not be condemned.

Dr. H. P. MOSHER (Boston) had found curetting of the diseased part in malignant disease palliative in relieving the stenosis of the gullet. In the choice of an anæsthetic in œsophagoscopy he preferred ether before cocaine. Ether enabled one to use a wider tube, and thereby not only could a more successful examination be made, but if necessary and advisable at the same time the stricture could be dilated.

Dr. W. JOBSON HORNE (London) agreed that the œsophageal bougie should not be condemned. The œsophagoscope at present was in the experienced hands of only a few, and a good deal of useful work in diagnosis could still be done with the bougie in conjunction with the X rays. The physiological, functional, and malignant forms of stenosis of the gullet could be coördinated, as the sites of occurrence were commonly the same in all three. In his experience foreign bodies lodged in the mouth of the œsophagus could be detected and removed as readily, and with less discomfort to the patient, by the indirect method as by the œsophagoscope. The latter undoubtedly in other cases saved a good deal of groping in the dark.

Dr. A. BRONNER (Bradford) questioned the value of radium in treating carcinoma of the œsophagus and also the accuracy of the diagnosis of cases so treated. The bougie he considered of service, especially when an anæsthetic was not obtainable or advisable.

Mr. C. W. M. HOPE (London) advised a solution of morphia, adrenalin, and cocaine for local anæsthesia.

Mr. G. SECCOMBE HETT (London) had found intravenous anæsthesia in œsophagoscopy simple, safe, and convenient.

Sir STCLAIR THOMSON (London) could not support Mr. Waggett's plea for condemning the bougie. Personally, if his œsophagus had to be examined he would prefer it to be done by a practitioner experienced in passing a bougie rather than by means of the œsophagoscope in the hands of a budding laryngologist. A hypodermic injection of morphia, 15 or 20 minutes beforehand, was a useful preliminary to local anæsthesia.

Mr. HERBERT TILLEY (London) considered that beginners in œsophagoscopy should be guided by a mandrin passed through the tube. In his experience, from the lips to the lower end of the œsophagus, a squamous epithelioma had never been cured by radium. Relief was produced by the dilatation by the radium tubes, in the same way as by the removal of fragments.

Dr. KAHLER, in his reply, opposed the use of the mandrin, and also that of radium. The latter caused ulceration and destruction of adjacent tissues, and its action was difficult to arrest.

Mr. WAGGETT, in his reply, still urged the appointment of a skilled œsophagoscopist to every cottage hospital.

Dr. BROWN KELLY and Dr. WALKER DOWNIE also replied.

Dr. HILL maintained that radium was of service in malignant disease of the gullet, but its value depended upon the technique of its application. It should not be pressed to the stage of cauterisation.

Dr. BRONNER read a paper entitled,

Notes on Two Cases of Painful Ulcer (Fissure) of the Mouth of the Œsophagus Associated with Atrophic Catarrh of the Pharynx.

In such cases, he said, he had found the passage of bougies beneficial. He regarded the cases as functional, and the fissures as the exciting cause. The fissures were not uncommonly associated with atrophic catarrh.

Dr. HILL considered such cases had been overlooked by not examining the œsophagus in cases of atrophic catarrh.

Dr. JOBSON HORNE said the subsequent history of such cases would be of value in clearing up the cause, as they might be found to be a very early stage of malignancy.

Dr. BRONNER replied and referred to the difficulty in obtaining after-histories.

Dr. IRWIN MOORE (London) demonstrated some instruments for use in œsophagoscopy, and an instrument for cutting foreign bodies to facilitate their removal from the œsophagus.

TROPICAL MEDICINE.

WEDNESDAY, JULY 24TH.

President, Professor JOHN L. TODD (McGill University, Montreal).

This section was opened by the PRESIDENT, who, however, gave no formal opening address. The major part of the sitting was devoted to the hearing of a number of papers upon the subject of trypanosomiasis. The first of these was by Dr. J. W. W. STEPHENS and Dr. H. B. FANTHAM on

Trypanosoma Rhodesiense, a Second Species of Trypanosome Producing Sleeping Sickness in Man.

It appears that until quite recently it has been assumed that sleeping sickness was caused by only one species of trypanosome (T. gambiense) which was conveyed solely by a single species of tsetse fly (Glossina palpalis). In 1910 Dr. Stephens noticed in the blood of a rat which had been inoculated with sleeping sickness from a patient then under treatment at Liverpool, that the trypanosome showed peculiarities of structure not before seen in T. gambiense. The morphological peculiarity was the presence of a posteriorly placed nucleus in some of the short or stumpy trypanosomes. The authors, although they made a prolonged search, were unable to find these posterior nucleus forms in animals infected with T. gambiense. They have therefore arrived at the conclusion that they have now to deal with a new species of trypanosome in man also causing sleeping sickness. This decision was reached almost entirely on the grounds of the morphology of the trypanosome. But other subsidiary evidence was also forthcoming. A case of sleeping sickness was met with which came from a region in North-Eastern Rhodesia where no G. palpalis is known but where G. morsitans abounds. This difference of the carrier also supports the view that the trypanosome is a new species. It has also to be noted that the pathogenicity of this new species is distinctly more virulent than any strain of T. gambiense yet described. This has already been specially pointed out by Warrington Yorke and also by Fantham and J. G. Thomson. It is noteworthy that T. rhodesiense produces well-marked œdema in the face of sheep, a condition not so far recorded in the case of T. gambiense; it also produces keratitis in dogs, while T. gambiense does not. The authors carefully measured 1000 specimens of T. rhodesiense and constructed a curve which differs materially from Bruce's curve of T. gambiense. There is also difference in the action of human serum on these two trypanosomes. Mesnil and Ringenbach have shown that this serum mixed with a dose of T. rhodesiense (which infects control animals in 24 hours) generally prevents completely the infection in mice; while human serum mixed with T. gambiense (though it is less virulent than T. rhodesiense) has no preventive or curative action whatsoever. Mesnil and Ringenbach have also shown that sera of animals, such as man, monkey, guinea-pig, &c., infected with T. gambiense are trypanolytic for the homologous trypanosome—i.e., T. gambiense, but have no action on the heterologous trypanosome—i.e., T. rhodesiense. It is important to note that Kinghorn and Yorke have succeeded

in transmitting T. rhodesiense by Glossina morsitans, and it is of interest to observe that they have shown that about 16 per cent. of the wild game examined in Northern Rhodesia are naturally infected with T. rhodesiense. The authors therefore contend that this evidence is strongly confirmatory of the view put forward by them in their original paper,[1] that there are two trypanosomes producing sleeping sickness in man, T. gambiense and T. rhodesiense, and that the transmitting agent of the latter species is Glossina morsitans.

In view of the fact that other papers relating to trypanosomiasis were to be read, it was decided to defer discussion till they had all been heard.

The next paper was read by the Secretary in the absence of the author, Professor F. K. KLEINE, the chief of the German Sleeping Sickness Commission. This paper was entitled,

The Identity and Transmission of Trypanosomes.

It seems that sleeping sickness is now known to occur in German African territory in a locality where only Glossina morsitans is met with. It is therefore possible that sleeping sickness does not depend on the existence of G. palpalis to the extent that was formerly believed, and it is suggested that the recent epidemic of sleeping sickness was only accidentally recognised just at the moment when it was being carried from West Africa with its fauna to East Africa. The experiments which were carried out by Dr. M. Taute with Glossina morsitans on the banks of Lake Tanganyika are explained.

The next paper was by Professor F. MESNIL, of the Pasteur Institute, Paris. In his absence it was read by Dr. H. B. FANTHAM, and its title was

Trypanosoma Rhodesiense and Trypanosoma Gambiense.

The paper summarised the work which had been done upon a strain of T. rhodesiense which had been sent to Paris from the Liverpool School of Tropical Medicine, where the parasite was first discovered. A comparison was made with two strains of T. gambiense, and Professor Mesnil, who was assisted by several of his collaborators at the Pasteur Institute, confirmed the peculiar morphological feature, discovered by Stephens and Fantham, of the posterior position of the nucleus in *all* sub-inoculated animals. They also confirmed the very marked virulence of T. rhodesiense in laboratory animals. A number of experiments were performed by Professor Mesnil and his co-workers as to serum reactions (protection, trypanolysis, and attachment), and also as regards cross-immunity, e.g., a Macacus rhesus immunised for T. gambiense became infected with T. rhodesiense after inoculation. Professor Mesnil therefore reaches the conclusion that there is a marked differentiation between the two human trypanosomes which cause sleeping sickness in Africa, and that the creation of a new species for the trypanosome of Rhodesia is correct. He also concludes that these two species of trypanosomes (T. rhodesiense and T. gambiense) are more closely related to each other than any other known species of trypanosome.

The next paper was read by the President in the absence of the authors, Dr. B. WOLBACH and Dr. C. A. L. BRUGER, of Boston. It was entitled

A Contribution to the Pathology and Histology of Trypanosomes.

This valuable paper was illustrated by a large number of lantern slides showing the pathological changes observable by the naked eye produced in the tissues of animals by trypanosomes (T. gambiense and T. brucei), and also slides showing the histological changes in the structures of various organs. The President gave some valuable explanatory remarks. In the opinion of Dr. Wolbach and Dr. Bruger there is some analogy between trypanosomiasis and syphilis.

The last paper of the series dealing with trypanosomiasis was contributed by Dr. A. KINGHORN and Dr. WARRINGTON YORKE, and in their absence was read by the Secretary. It was entitled,

Trypanosomes Infecting Game and Domestic Stock in the Luangwa Valley, North-Eastern Rhodesia.

Trypanosomes appear to be of frequent occurrence in game and stock in the Luangwa Valley. At least 37·5 per cent. of the buck harbour trypanosomes. Six species of these parasites were identified—viz., T. rhodesiense, T. vivax, T. nanum, T. pecorum, and two others, of which one was T. montgomeryi. In nature Glossina morsitans transmits two of these species—namely, T. rhodesiense and T. pecorum; it probably also transmits two others, T. vivax and T. nanum.

Owing to the highly technical nature of these contributions discussion of them was not easy, but the PRESIDENT made a rapid summary of the papers, giving his own views generally. He also spoke of the advances brought about by the efforts of scientific investigators. Some remarks were made by Dr. H. SEIDELIN (formerly of Merida, Mexico, but now of Liverpool) upon the best methods of securing demonstration of trypanosomes in sections of the tissues, and after this the discussion closed.

A valuable paper was then read by Dr. M. WEINBERG (Paris) upon

Helminthic Toxins.

Worms play, he said, a very important rôle in tropical pathology, but their action on the organism is not, however, as yet completely elucidated. For the last ten years Dr. Weinberg has occupied himself much in studying the part played by worms in the etiology of certain infectious diseases; intestinal parasites are capable of favouring their penetration into the organism. It has been surmised for some time that worms secrete toxins, but those engaged in research in this direction have not yet brought forward sufficient proofs in support of their views. Dr. Weinberg divides the facts which prove the existence of these toxins into two groups, those of which we have direct proof and others which furnish us with indirect proofs. The indirect proofs of the intoxication of the organism in helminthiasis is brought forward by the presence of eosinophilia. The researches of Achard and Pröscher, and also those by Dr. Weinberg in collaboration with Moore Alexander, and Hugo Mello, have shown that the eosinophilia is due exclusively to the action of parasitic substances on the hæmatopoietic organs. Searching for direct proofs, guided by the anæmia observed in the course of ankylostomiasis some observers have discovered that extracts of ankylostomes are capable of destroying the red blood corpuscles. It has been shown that all parasitic worms or insects which live on red corpuscles elaborate hæmotoxic substances which prevent the coagulation of the blood and dissolve the red cells. This happens with sclerostomes, &c. Dr. Weinberg showed under the microscope a preparation in which a sclerostomum was seen fixed on the wall of the large intestine of a horse; the œsophagus of the parasite is seen filled with blood and with Lieberkühn's glands. These are completely disintegrated in the lower parts of the intestines. There can be no doubt in Dr. Weinberg's view that sclerostomum secretes a cytolytic toxin for epithelial cells. The organism absorbs these toxins and elaborates antibodies, research permitting us to make the diagnosis of helminthiasis. The serum diagnosis of echinococcus is of great service to the clinician. Dr. Weinberg thinks it is important for the clinician, especially in the tropics, working in an area infested by parasites to take account of all clinical symptoms which can be easily explained by the action of worms.

This paper was discussed by the PRESIDENT, Dr. R. T. LEIPER (London), Dr. STEPHENS, and Dr. F. LAW (British Guiana), after which Dr. WEINBERG replied.

A short communication was read by the Secretary for Fleet-Surgeon P. W. BASSETT-SMITH, R.N., Royal Naval Hospital, Haslar, on

Blood Determination in a Case of Chinese Schistosomiasis,

which was subsequently discussed by the PRESIDENT, Dr. LAW, and Dr. WEINBERG.

The last paper was by Dr. A. CASTELLANI (Ceylon) on

Copra Itch,

and in his absence was read by Dr. B. BLACKLOCK (Runcorn Research Laboratory), secretary to the section. The disease resembles scabies, and is found among the workers in copra (the dried kernels of the cocoanut). The affection is caused by a parasite which is less in size than the acarus scabiei. Secondary infections, the result of scratching, are common. The treatment is by ointments applied at night after a hot bath.

There was no discussion on this paper, and the section then adjourned.

[1] Vide Proceedings of the Royal Society, 1910, B., vol. lxxxiii.

ANATOMY.

THURSDAY, JULY 25TH.

President, Professor WILLIAM WRIGHT (London).

The Course of the Inferior Vena Cava.

Professor A. M. PATERSON (Liverpool) demonstrated specimens to display the course of the inferior vena cava in the thorax. Attention was drawn to that portion of the vein which stretches from the thoracic surface of the diaphragm to the pericardium, an intrathoracic course which amounts to some three-quarters of an inch. The subject was brought forward for the reason that though text-books pay but little attention to this part of its course, it is of clinical importance, since the inferior vena cava may rupture into the right pleural cavity.

In the discussion which followed the PRESIDENT drew attention to the constancy of a small lymphatic gland situated within the pericardium at the site of opening of the inferior vena cava. This, the only lymphatic gland in the pericardial sac, might probably be of importance in cases of infection of the pericardium in the course of such diseases as tuberculosis. Professor Wright had seen this gland in cases of tuberculosis of other parts of the body infected with the disease and on the point of breaking down into the pericardial cavity.

Professor PETER THOMPSON (Birmingham) read a paper on

The Development of the Diaphragm during the First Month.

This paper was illustrated by reconstruction models of a third week and a fourth week embryo and by numerous lantern slides. Professor Thompson said that in the younger embryo, which measured 2·5 mm., the septum transversum was invaded by the liver outgrowth, and as yet there was no sign of the so-called "pulmonary ridge" described by Mall. In the older embryo the liver was separated from the septum transversum and the pulmonary ridges were well defined. These two specimens illustrated well the real nature of the pulmonary ridges, which were demonstrated to be the matrix in which the phrenic nerves reached the septum transversum. In the later stage the origin of the nerves was separated by some distance from the diaphragm and the two pulmonary ridges marked the course of the nerves. The cephalic end of these ridges had been named the pleuro-pericardial membrane, while their caudal end was known as the pleuro-peritoneal membrane; and since both of these take some share in closing the communications between the pleural and peritoneal cavities, it was possible that the development of the phrenic nerves had some rôle in bringing about the adult separation of these cavities. In both these specimens the lungs were abdominal in position. Attention was also called to another point of interest shown in these embryos, for here was demonstrated with great clearness that diverticulum of the lesser sac of peritoneum, known as the pericœsophageal cœlom, which has been said to represent a third pleural cavity for the azygos lobe of the lung.

Professor PATERSON discussed this latter point and drew attention to the condition of the azygos lobe of the lung in the deer.

The PRESIDENT discussed the closure of the pleuro-peritoneal canals and instanced the condition seen in the elasmobranch fishes.

Transposition of the Viscera.

Dr. J. S. MANSON (Warrington) exhibited a youth in whom there was complete transposition of the viscera. The case was of the ordinary type, and the condition was demonstrated by skiagrams of the principal organs.

The PRESIDENT and Professor THOMPSON joined in the discussion and agreed that no reasonable explanation of the cause of the condition had been put forward.

Double Ureter.—Pseudo-hermaphroditism.—Shelled Egg containing Shelled Egg.

Professor A. CAMPBELL GEDDES (Dublin) demonstrated a series of interesting anatomical anomalies. 1. A case of double ureter, both ureters communicating with the right kidney but having normal bilateral openings into the bladder. There was also a left-sided post-renal vena cava. (In the discussion which followed, and in which Professor PATERSON, Professor WRIGHT, and Professor THOMPSON took part, it was accepted as probable that a primary condition of double kidney accounted for the anomaly present. It was suggested that a horseshoe kidney which had retracted during development to the right side would produce such a condition.) 2. A remarkable case of pseudo-hermaphroditism. The case was that of an aged female who had been possessed by a life-long fixed idea that she was in reality a male and was heir to an estate. The mental condition amounted to definite insanity and she was confined to an asylum. At her request her body was examined after death in order to prove her claims. On inspection it was noted that the first sight appearance of the genitalia was remarkably masculine, for an apparently well-developed penis was present, but on further examination this "penis" proved to be a local hypertrophy of a portion of the left labium minus. There is no doubt that this curious anomaly was "manufactured" by the patient, and so artfully had the simulation been carried out that a glans, and even a urethral orifice, had been modelled on the part manipulated. 3. Professor Geddes also exhibited a specimen of a shelled egg contained within an enclosing shelled egg, a freak of which many examples have been recorded, and which seems to demonstrate conclusively that an egg may make a reversed journey through the oviduct.

Pseudo-hermaphroditism.

Dr. W. P. GOWLAND (Liverpool) described a case of pseudo-hermaphroditism, interesting on account of the fact that a well-developed uterus and testicles were present in the same individual. The uterus terminated apparently at the neck of the bladder; no vagina was present and no prostate could be recognised. As an infant the patient was said to suffer from hernia and for 35 years had worn trusses; it was at length the descent of this "hernia" (testicles) which led to his complete examination.

Mr. R. G. BROWN (London), in collaboration with Professor WRIGHT, read a paper on

The Vestigial Structures in Relation to the Epididymis.

Fifty-three cases were examined for the so-called hydatids of Morgagni; 68 of these hydatids were found distributed in the following proportion: 1 hydatid in 69·9 per cent. of cases, 2 hydatids in 17 per cent., 3 hydatids in 3·7 per cent., and 4 hydatids in 3·7 per cent. The situation in which they were found was as follows: On the testicle, 48·5 per cent.; on the epididymis, 22·0 per cent.; and on the junction of the two, 29·5 per cent. In shape they were irregular and difficult to classify; 80·8 per cent. were described as "stalked," 14·9 per cent. as "sessile," and 4·5 per cent. as "doubtful." The microscopic structure of the adult hydatid was uniformly fibrous tissue continuous with the tunica albuginea, and containing numerous blood-vessels. In the fœtus they contained tubules similar in all respects to the tubules of the epididymis. No definite clue as to any of the hydatids being of Müllerian origin was found.

In the discussion which followed Professor WRIGHT, Professor THOMPSON, and Professor PATERSON took part.

The Abdomino-Pelvic Anatomy.

Professor JOHNSON SYMINGTON (Belfast) demonstrated a method of displaying certain features of abdomino-pelvic anatomy. The method consisted of distending the hollow viscera with gelatin and then removing the hardened viscera *en masse*, leaving a cast of their contact upon the posterior wall of the abdomino-pelvic cavity. In this way both the shape of the cavity and of the contained mass could be readily appreciated.

Professor GEDDES added to the discussion of this subject by demonstrating his method of making contour maps of the back wall of the abdomino-pelvic cavity.

Dr. J. S. DICKEY (Belfast) gave a paper on

A Comparison between Two Hearts,

illustrated by a series of sections taken through the chest to show the relations and dimensions of the hearts studied. It was evident that the pathological conditions explained the differences, which had been determined with much accuracy. One case was that of a phthisical woman who had died at the age of 20 after a very severe hæmorrhage; the other was that of a man, aged 50, who died from cerebral hæmorrhage. The female heart was almost depleted of blood, and in consequence occupied an unusually small area after her death.

Professor R. J. ANDERSON (Galway) gave a generalised paper upon

The Variations Displayed in the Form of the Stomach in a Variety of Lower Animals,

to which were added some discursive remarks upon symmetry, asymmetry, and ambidexterity.

PATHOLOGY.

WEDNESDAY, JULY 24TH.

President, Professor I. WALKER HALL (Bristol).

Professor J. LORRAIN SMITH (Manchester) opened a discussion on

Bright's Disease.

Speaking from the morbid anatomy and etiological standpoint, he said that the principle on which he proceeded was to study the distribution of fibrous tissue in the cortex of the kidney in various forms of Bright's disease. He said that the presence of fibrous tissue in the cortex might be taken as an indication of a preceding condition of inflammation, the general result being that the secreting and vascular structures were replaced by connective tissue. On this basis kidney lesions were divided by him into two main groups—(1) those in which the fibrous tissue appeared diffused through the whole cortex uniformly; and (2) those in which the fibrous tissue appeared in patches, while other areas remained unaffected. The diffuse form was that which was seen in the large white kidney, the microscopical examination of which showed strands of fibrous tissue surrounding every tubule, glomerulus, and blood-vessel. The epithelium of the tubules showed marked atrophy, but the walls of the vessels were not thickened, the glomeruli were not hyaline, and there was universal fatty degeneration. The consequence of this was that the whole secretory apparatus was damaged, albumin and casts were consequently found in the urine, there was general œdema, and ultimately death from uræmia. In the second type of fibrosis a circumscribed area showed the gradual disappearance of tubules, the hyaline transformation of glomeruli, thickening of vessel walls, and the formation of an excess of hyaline fibroid stroma. This form was known as the granular, or small red or chronic interstitial nephritis. On examining cases of so-called parenchymatous nephritis, he observed that, however universal was the growth of fibrous tissue, it was never absolutely uniform, one area being more affected than another in all cases. This condition was seen in the acute exudative stage, in the large white kidney, and also in the small white kidney. The history of Professor Dixon Mann's case, published in THE LANCET [1] in 1895, bore out this point. It was observed for a period of 28 years, commencing as scarlatinal nephritis, and at the necropsy there was found typical patchy fibrosis or chronic interstitial nephritis; this case showed clearly that a case ultimately showing circumscribed fibrosis might commence as a case of typical scarlatinal nephritis.

Sir T. CLIFFORD ALLBUTT (Cambridge) confined his remarks to the "so-called granular kidney," an unsatisfactory name which he accepted for lack of a better. He did not regard "granularity" as any pathological criterion of a kind of kidney, but considered the granular kidney as significant of a certain well-known disease, the pathology of which was in doubt. He assumed that the "granular kidney" and "small white" kidney differed both clinically and histologically, though the colour was hardly one of the constant differences. He then discussed the question of atheroma, which he described as of two kinds—that associated with high blood pressure and the atheroma of "senility," or "decrescent atheroma," which latter was not generally associated with high blood pressure. In senile kidney the sclerotic change began in the aorta and larger vessels, and the main trunk and branches of the renal artery were affected, whereas the "granular" kidney presented an intimate arterio-sclerosis not of its main trunks and branches but of the afferent and interlobular arterioles. This change was accompanied by a like change in the smaller vessels of other organs—brain, spleen, pancreas—but not of the intramuscular vessels of the heart or liver. He considered this vascular change to be a disease not of the media but of the intima, though not a fibrosis, and he recalled granular kidney to the order in which it was placed by Gull and Sutton—viz., the order of a general malady, not primarily renal, and due to a poison or toxin working selectively on certain areas of small arteries, but resisted by others. The association of excessive arterial pressure was not the result of the peripheral sclerosis, but was probably due to some unknown cause common to both conditions. He distinguished then between the two kinds of sclerosis, and pointed out that the second kind might be, and often was, absent in young cases of short duration. He accentuated the fact that arterio-sclerosis as a cause *per se* of any considerable rise of blood pressure was an erroneous tradition, which even yet occupied the minds of many. His former opinion that the "granular kidney" was essentially a parenchymatous decay followed by other secondary degenerative changes had been shaken by recent work and no sequence had been ascertained between acute renal intoxications and granular kidney. It seemed to him that the unknown injurious agent in granular kidneys was not a cytolytic but an arterial tissue poison. After discussing the views of Wildt, Gaskell, Smith, Ribbert, and Ebstein, he concluded that granular kidney was not an incident in a general senile arterio-sclerosis, but a product of a special internal arterio-sclerosis, which was not general but distributed in particular arterial districts. He next discussed the significance of albuminuria, which could occur in the later stages of the arterio-sclerotic kidney, though a granular cast was a rare occurrence. He alluded to his own two classes—viz., hyperpiesis without renal symptoms, and senile or decrescent kidney, in both of which appeared a slight tendency to albuminuria. Hyperpiesis he considered to be a malady, not granular kidney, but resembling it in the persistence of excessive blood pressures, in proneness to heart defeat, and to apoplexy, not marked by uræmic symptoms, and resembling granular kidney merely in derangement of circulation, but which might be due to a similar poison setting up wide fields of arterial constriction. It had been called "latent nephritis," "potential Bright's," "nierensklerose," &c. After describing the episodic attacks of hyperpiesis, with restlessness, depression, dyspepsia, and rise of blood pressure, he laid stress on the importance of an early recognition of this state, which was amenable to treatment. Discussing the etiology, he instanced Harvey's experiments with an "amine," which was probably absorbed from the bowel to act as a vaso-constrictor.

Dr. J. F. GASKELL (Cambridge) gave the following classification of forms of kidney disease which he proceeded to discuss: I. Toxic: Due to exogenous or endogenous poisons. II. Inflammatory: (*a*) Glomerulo-tubular nephritis—nephritis proper; (1) acute; (2) reparative—large white or mixed nephritis; (3) sclerotic—secondary or small white. (*b*) Embolic focal nephritis, in ulcerative endocarditis only. (*c*) Acute interstitial nephritis—scarlet fever, early stage. III. Vascular: (*a*) arterio-sclerotic contracted kidney—senile form. (*b*) Primary contracted kidney—high pressure form. I. The toxic form, he said, was due to the alteration of the tubular epithelium by the actual excretion of poisonous substances through them. The temporary albuminuria occurring in this form was familiarly seen in febrile affections generally, and also in cases of any poison introduced into the circulation. A most extreme form was seen in the toxæmia of pregnancy, in which the whole cortex might become necrotic. Interstitial increase was slight or absent. II. The true inflammatory form—glomerulo-tubular nephritis—was essentially an inflammation of the whole organ, all structures being affected. Interstitial œdema was marked and characteristic. It had three forms: 1. *Acute*, the patient dying a week or two after the attack. 2. *Reparative* or subacute, the patient dying months after the acute attack. General œdema was characteristic, both in the body and the kidney. This was commonly known as large, white, chronic parenchymatous nephritis, or mixed nephritis. Death was usually due to a secondary infection. 3. *Sclerotic* or secondary contracted kidney, the patient dying years after the initial attack. This was often called small white kidney. The great characteristic here was the great destruction of kidney substance, the number of functioning glomeruli being few. This form was always accompanied by heart hypertrophy and high blood pressure. Death was usually due to uræmia. (*b*) Embolic focal nephritis was due to the lodging of very small septic emboli

[1] THE LANCET, Sept. 14th, 1895, p. 670.

in the glomerular capillaries. The change was characterised by the formation of small abscesses in a part of the glomerulus and only in a certain number of glomeruli. The lack of authentic records of recovery in malignant endocarditis rendered it improbable that any chronic contraction could arise in this form. (*c*) Acute interstitial nephritis. This occurred only in the early stages of scarlet fever, and was characterised by infiltration, mainly of plasma cells, round the large vessels and the glomeruli. The patient probably never survived, as this form was apparently associated only with the very severe form of the disease. III. Vascular. (*a*) The *arterio-sclerotic* kidney was due to the loss of function and atrophy of glomerulo-tubular systems, owing to the lowering of the pressure in certain glomeruli by the arterio-sclerotic distortion of certain interlobular arteries, while at the same time the heart was not hypertrophied and the blood pressure not raised. The nodular fibrosis was due to this atrophy. (*b*) *Primary.* Contracted kidney was due to an arterio-sclerosis of the smallest arteries which led ultimately to complete occlusion and thus to atrophy of glomeruli and their tubules. This process was not confined to the kidney, but also occurred in the brain and spleen and perhaps other organs. It was accompanied by great heart hypertrophy and rise of blood pressure. The cause of death was very frequently cerebral hæmorrhage.

Dr. F. CRAVEN MOORE (Manchester) drew attention to the deficiencies in our knowledge of such disorders of metabolism as might occur in association with destructive diseases of the kidneys, either primarily or secondarily. Apart from certain experimental investigations and isolated observations in cases of human nephritis, the great bulk of the extensive analytical and physico-chemical investigations in cases of nephritis had been concerned with the estimation of the secretory capacity of the damaged organ. The difficulties of metabolic investigations where the main excretory mechanism was at fault were very considerable, and the certain elimination of fallacies seemed well-nigh impossible, for not only had the imperfect and inexplicably variable excretory capacity of the diseased kidneys to be reckoned with, but also the possibility of other organs, as the skin and alimentary mucosa, vicariously assuming an excretory rôle. In such case the difficulty of assigning any particular result to perversion of metabolism or to excretion was patent, and we must, he thought, look rather to the appearance of products of incomplete nitrogen metabolism than to variations in the sum of metabolism for evidence of perversion. It had been assumed that a diminution in the amount of kidney substance might produce a disturbance of general metabolism quite apart from the impairment of the excretory capacity of the organ. This view was maintained by Rose Bradford, who found experimentally that the removal of not more than one-fourth of the total kidney weight was followed by great wasting and an increased excretion of urea; a repetition of these observations by Bainbridge and Beddard, on the other hand, led these observers to interpret the wasting and the increased urea excretion as being but the expression of starvation. It had been determined that in dogs bilateral nephrectomy proved more rapidly fatal than ligation of both ureters, and that the injection of either normal serum or renal juice into nephrectomised animals would prolong life even beyond that of animals in which only the ureters had been ligatured. When it was recalled that there was on record an authentic case where a human being survived some 11 days after the excision of a solitary kidney, it was difficult, he said, to feel satisfied with any deductions from these rapidly fatal experiments. Such observations as had been made on the human subject suffering from nephritis were curiously negative in evidence of any general disturbance of metabolism. In uncomplicated nephritis nutrition might be maintained with adequate dieting, and the oxygen intake and the carbon dioxide excretion remained within normal limits. Investigations of nitrogenous metabolism, which had been sufficiently prolonged to eliminate the curious and unaccountable variations in nitrogenous excretion characteristic of nephritis, had shown that nitrogenous balance was maintained; it might be for a time there was a loss, then for a time a gain, followed possibly for weeks together by a balance, but the sum of the whole was a balance. What few observations had been made on the products of endogenous purin metabolism seemed to indicate no abnormal relations. That a perversion of nitrogenous metabolism might obtain was seen in the relative increase of ammonia nitrogen to the total nitrogen. This was especially evident in uræmia, where it might attain 18 per cent. of the total nitrogen. Of the amido-acid nitrogen, although previous investigations had failed to demonstrate any relative increase, yet he believed that further research in this direction with the modern methods would be well worth the time consumed; certainly it would give some clue to the functional capacity of the liver.

Dr. THEODORE SHENNAN (Edinburgh) referred to the difficulties met with in the post-mortem room in the diagnosis of pathological changes. He assumed that all recognised that mixed changes were the rule in the kidney, and that the name given to the condition indicated merely the predominant change. One great difficulty was the variety of nomenclature. Different pathologists used different names for the same processes, and the pathologist's connotation of some of these terms did not correspond to that of the clinician—such, for instance, as large and small white kidney, small red kidney, granular contracted kidney, granular contracting kidney, and others. He also considered the position of the arterio-sclerotic atrophy of the kidney, and suggested that one should bear in mind clearly that this should be placed as a separate entity, not with nephritis, but with the atrophies, though it must be admitted that it was usually associated with chronic interstitial changes. He asked for closer coöperation between the pathologist and the clinician. If the functional changes were more minutely worked out during life there would be greater possibility of discovering at the post-mortem examination the anatomical changes which corresponded to these.

THE ANNUAL EXHIBITION.

(*Concluded from p. 317.*)

IV.—FOODS AND FOOD PRODUCTS.

The medical man in search of novelties in the direction of special foods usually finds a good many dietetic preparations which are well worthy of his notice. This section, in fact, affords the manufacturers of special foods and food products a good opportunity of submitting specimens for taste or inspection and of describing their special features and the methods by which the foods are obtained. The opportunity, of course, is not missed by old-established firms whose goods have been familiar for a number of years but who generally announce some fresh departures. The exhibit of Messrs. Manuel Frères, of Lausanne, Switzerland, for whom Messrs. Callard and Co., of 74, Regent-street, London, W., are agents, was devoted to their "anti-putrefactive foods," which aim at suppressing nitrogenous putrefaction in the intestine by giving a lacto-farinaceous diet. Slow absorption is said to be secured by this special food, and the formation of lactic and succinic acid as metabolic products assists in reducing the activities of putrefactive organisms. A comparatively new food product is laibose, prepared by Messrs. Fairchild Bros. and Foster, of 64–65, Holborn-viaduct, London, E.C. As was pointed out in our own laboratory report, laibose is a food composed of the solids of pure whole milk and the entire digestible substance of whole wheat. 75 per cent. of the food is soluble in water, and the proportions of carbohydrate, protein, fat, and phosphatic salts are satisfactory. Another quite new food product is pascon (The Pascon Company, Talbot House, Arundel-street, Strand, London, W.C.), which is described as a cheap soluble protein made from the nutrient portions of beef. It occurs as a fine yellow powder, free from smell, and slightly saline to the taste. It is usefully employed to reinforce many foods low in protein value. It is claimed to possess direct nutritive value, differing in this respect from simple extract of meat. Its solution gives copious coagula with tannin or bromine. Preparations were shown of cocoa with pascon, biscuits, beef extract, port wine, and brandy. Close by was Messrs. Savory and Moore's exhibit (New Bond-street, London, W.) of their well-known food for infants, which has the recommendation of a record of good results in practice. There was also shown an excellent petroleum jelly, a laxative known as fructolax, which is quite agreeable to the taste, and a number of peptonised milk preparations.

The Hygiama Foods Company, of 6, Catherine-court, Trinity-square, London, E.C., exhibited their special food hygiama made from cereals by submitting them to the action of diastase and dextrinising until practically all starch has disappeared. Full cream milk is subsequently added. A standard preparation of its kind is the malted milk of Messrs. Horlick, of Slough, Bucks. In it the full digestive activities of diastase are taken advantage of, malted grain and milk being used together, the whole being reduced to powder form in vacuum pans. Evidence is adduced of its real value as a food in practical experience.

Messrs. Callard and Co., of 74, Regent-street, London, W., showed an interesting series of starchless and sugarless foods which are not only adapted to the requirements of diabetic patients from the point of view of dietetic treatment, but on account also of their palatability. Sinapisms were a feature at the stall of Messrs. Keen, Robinson, and Co., Limited, of Denmark-street, St. George's-in-the-East, London, E., amongst the useful preparations shown being Colman's concentrated mustard oil and mustard bran, and the exhibit included the patent barley and groats associated with the name of Robinson. There can be little question as to the wholesomeness of barley-water as a beverage, more particularly when the farina is the product of a superior growth cereal. Virol, Limited, of 152-166, Old-street, London, E.C., exhibited their speciality—virol—which has now gained the evidence of long experience in its favour, especially as a food in wasting diseases and in failure of assimilation in children. Gluten preparations were well represented by Messrs. G. Van Abbott and Sons, of Baden-place, Crosby-row, Southwark, London, S.E., who exhibited specimens of gluten bread, viscottes, flour, and semola. They also drew attention to the advantages of almond flour in the diet of the diabetic, and a list of preparations suitable for patients exhibiting a tendency to obesity. Full of interesting preparations was the comprehensive exhibit of Messrs. Armour and Co., Limited, of Atlantic House, Holborn, London, E.C., who in addition to powerful meat nutrients submitted a number of digestive ferments (pepsin, pancreatin, trypsin) for inspection, an extract of bone marrow, lecithin compounds, and many glandular extracts employed in organo-therapeutics. Attention may be drawn in particular to their digestive ferments, because the activity is guaranteed by tests which demand a high standard.

V.—Mineral Waters, Beverages.

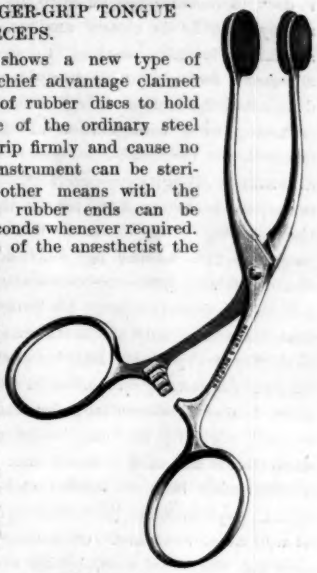
We have already referred to the exhibits which furnished illustrations of the application of radium emanation to therapeutics, but there was one example brought forward of a home natural radio-active water, and that was Buxton water. Recent investigation has shown that the waters of Buxton enjoy the distinction of being decidedly radio-active, and the healing properties of the water in gout and rheumatism and other diseases are now attributed to the radium emanation, especially as chemical analysis has only disclosed the presence of small quantities of lime salts which most drinking waters contain. It seems to be an axiom that when a natural mineral water is thermal it is radio-active also. Another type of water used with unquestionably good results in many cases of rheumatism and gout is the brine bath of Droitwich, the advantages of which were explained by photographs and literature issued by Mr. J. H. Hollyer, of 60, Corbett Estate Offices, Droitwich, Worcestershire. This spa is now replete with balneological equipments, and no effort is spared to make the place socially attractive to the visitor. The Société des Eaux Minérales de Vittel (12, Mark-lane, London, E.C.) similarly drew attention to the medicinal virtues of Vittel water (Grand Source), which lie chiefly in the direction of alleviating rheumatic and gouty troubles. The water contains alkaline carbonates and the sulphates of magnesia, soda, and lime, with lithia. From a perusal of the prospectus it is clear that the management do their best to prevent their patrons from spending a dull moment during their visit. At their stall Messrs. Ingram and Royle, Limited, of Bangor Wharf, 45, Belvedere-road, London, S.E., signified their position as agents for most of the well-known natural mineral waters abroad, notably Carlsbad, Contrexéville, Giesshübler, and Vichy. The natural salts of the Carlsbad water are obtained in crystalline or powdered form by evaporation. The Apollinaris Company, Limited, of 4, Stratford-place, Oxford-street, London, W., exhibited specimens of the remarkable gaseous and alkaline water which gives the company its name drawn from the warm springs at Neuenahr, Germany. The exhibit included the bitter saline aperient water Apenta, Johannis water, and Johannis lithia. Likewise specimens were shown of the mildly acting natural aperient mineral water from the Friedrichshall springs by the agents, Messrs. C. Oppel and Co., of 10 and 12, Milton-street, London, E.C. Besides the sulphates of soda and magnesia, this water contains a notable quantity of sodium chloride, which some physicians regard as a valuable constituent increasing metabolism.

VI.—Publications.

There were several stalls devoted to the exhibition of standard medical works and publications, and this section is generally appreciated. The British Medical Association, 429, Strand, London, W.C., submitted copies of "More Secret Remedies," containing analyses of many much-advertised secret remedies. Messrs. John Wright and Sons, Limited, Bristol, had an interesting collection of modern medical books, as had also the Oxford Medical Publications Company, of 20, Warwick-square, London, E.C., Messrs. Rebman, Limited, of 129, Shaftesbury-avenue, London, W.C., Mr. H. K. Lewis, of 136, Gower-street, London, W., and the W. B. Saunders Company, of 9, Henrietta-street, Covent Garden, London, W.C.

New Inventions.

IMPROVED FINGER-GRIP TONGUE FORCEPS.



The illustration shows a new type of tongue forceps, the chief advantage claimed being the insertion of rubber discs to hold the tongue, in place of the ordinary steel jaws. These discs grip firmly and cause no injury. The entire instrument can be sterilised by boiling or other means with the greatest ease. The rubber ends can be renewed in a few seconds whenever required. For the convenience of the anæsthetist the handles are placed at an angle and can in no way interfere with the operator. The sore tongue sometimes complained of by patients after the ordinary type of forceps has been used is obviated by these forceps.

The instrument has been made to my instructions by Messrs. Meyer and Meltzer, Great Portland-street, London, W.

T. Conrad Reeves, M.R.C.S. Eng., L.R.C.P. Lond.,
Late Senior House Surgeon, East Suffolk Hospital,
Alfriston, Sussex. Ipswich.

Presentations to Medical Practitioners.—At Ashburton (Devon), on July 27th, Mr. W. Fitzpatrick, L.R.C.P. Edin., L.R.C.S. Edin., L.F.P.S.G., who is retiring from active work owing to ill health, was presented by Major R. Tucker, on behalf of the subscribers, with a purse of gold and an illuminated address with the names of 175 subscribers.—On July 29th Alderman J. A. Tate, on behalf of the members of the St. John Ambulance class in connexion with the Cheddar Valley Railway Station employees, presented Mr. Herbert William Allan, B.A. Cantab., L.R.C.P. Lond., M.R.C.S. Eng., with a silver mounted pipe in case in appreciation of his services as honorary instructor.

THE LANCET.

LONDON: SATURDAY, AUGUST 10, 1912.

The Decline in the Birth-rate and Death-rate.

AT the Congress of the Royal Sanitary Institute, which was held at York last week, the presidential address in the Section of Preventive Medicine was delivered by Sir SHIRLEY MURPHY, and will be found *in extenso* at another page of our present issue. It proved to be a most suggestive utterance. Sir SHIRLEY MURPHY takes up the striking position that much of the well-known decline of the death-rate, not in England alone, but in Europe generally, which has occurred during the last 50 years, is a natural phenomenon which has appeared independently of the machinations of man. He is far from denying that much of the improvement of the conditions of life, tending, as it does, to increase resistance to disease, is due to human agency, but he is clearly anxious, and for a practical sanitarian laudably anxious, to show that, making full allowance for what man has done, Nature has largely determined the decline of the death-rate.

Passing to a consideration of the birth-rate and its parallelism to the death-rate, both in London and elsewhere, Sir SHIRLEY MURPHY compares definitely, though in guarded terms, the behaviour of the rates in three groups of districts, the grouping being based on the social condition of the parents. The astonishing conclusion is reached that the decline in both birth-rate and death-rate has been least in the most favoured classes. Sir SHIRLEY MURPHY suggests that the rates of birth and death are so intimately connected that they are probably interdependent; and further, that inasmuch as fertility is inherited in man, and susceptibility to some diseases (tuberculosis, for example) is possibly inherited, morbidity also may be inherited in a much wider sense than is now held to be the case. If we could establish a relationship between fertility and morbidity, we should have an explanation of the behaviour of the rates of natality as well as of mortality. Of course, Sir SHIRLEY MURPHY does not deny that man, by his efforts to limit families, may have contributed to the decline in the birth-rate, but he contends that this decline is too widespread, too intimately linked with the death-rate, to be other than in large degree a natural phenomenon.

The matter is necessarily speculative, but Sir SHIRLEY MURPHY believes that he has ground enough to claim that the hypothesis advanced deserves further investigation, and that is the opinion to which most of our readers will come. The reports of the Registrar-General, the published opinions of Professor KARL PEARSON, and others, have been used with great shrewdness to enforce the arguments, and we regret that according to the rules governing presidential addresses no discussion upon the views of a president was permissible. Both at home and abroad the coincidence of decline in the rates both of mortality and of natality is an established fact; whether or not they are interdependent, as suggested by Sir SHIRLEY MURPHY, still remains to be shown, but at any rate he has produced reasons for modifying our beliefs. It happens too often that thoroughly important questions get shelved in the public mind because a simple answer is accepted as a true and complete one. On how many platforms, from how many pulpits, has not the information gone forth that the decline in the death-rate of any community—any community whatever that is under discussion—was due to improved sanitation? We see from the evidence that Sir SHIRLEY MURPHY has brought together that such sanitary enterprise may only have played a secondary part. Again, have we not all been told with such persistence as to force acquiescence that the decline in the birth-rate has been voluntarily brought about? Sir SHIRLEY MURPHY'S evidence makes this very doubtful. He questions whether any artificial measures could possibly have such widespread and synchronous results. Lastly, everyone knows that the decline in the birth-rate has taken place most markedly in the idle and luxurious classes. Everyone knows it because everyone has been told it so often, but Sir SHIRLEY MURPHY doubts whether it is correct.

Preventive Medicine and Public Feeling.

THERE was a time when it was the complaint of the medical profession that the public took no interest in the development of medicine and heeded little the general lessons to be drawn from medical teaching; but it must be remembered that, although these unenlightened days are not far removed from us, they were immediately preceded by an epoch in which medicine itself delighted to conceal from the public both the reasons for its theories and the details of its work. A shroud of mystery was employed on all occasions, not from any deliberate intention to withhold from the public information what would be good for the public, but from a genuine survival of the primeval impression that illnesses were themselves a series of mysteries which could only be solved by the particular actions of initiates, so that the coöperation of outsiders was not worth while seeking. And so it was little sought and seldom proffered. Of course, we have got long past that phase now, though it would be difficult to say whether this has been due more to a liberal spirit in the medical man than to the general enlightenment of the public as to our aims and objects, which has followed upon the rise of educational standards. Anyhow, the events of the past few days have shown clearly that in all civilised countries there now exists a remarkable interest among the public in every question of preventive medicine and of what may be called racial biology. At the close of July we had a meeting in Berlin of the Royal Institute of Public Health; later in York we had a meeting of the Royal Sanitary Institute; and simultaneously in London we had the important and successful International

Eugenics Congress, whose objects can be correlated with the objects of any public health society; the broad function of all these bodies is the desire to eliminate disease and better the race, and the common reason for their meetings has been the intent to disseminate and interchange information to those ends.

In his eloquent address to the State Medicine Section of the Royal Institute of Public Health, which we published last week, Sir CLIFFORD ALLBUTT very rightly pointed out that the labours of such a group of workers as he was addressing extend far beyond the scope of reparative, and even of preventive, medicine, reaching what he called the social organism, an organism which may have a soul of its own, as it certainly has a body. The growth of this organism, in body and soul alike, should be the most earnest consideration of the public, for if the parts do not cohere properly and come to right maturity the mainspring of action will get out of gear. Then both the State and the individual will fail of their full development, and we may obtain an excellent proof of the uncompromising EZEKIEL's statement—"the soul that sinneth it shall die." Sir CLIFFORD ALLBUTT's address might as well have been delivered to the Eugenics Congress as to any assemblage of sanitarians, for that Congress was well described by one of its most distinguished supporters as symbolising humanity, conscious of itself, ready to confer with itself, and seeking to promote its own welfare by looking beyond the present generation to generations that are to come. The inculcation in great centres of thought of such broad doctrines as this, at gatherings where medical men and laymen meet on common platforms, is, we consider, of the best augury. Not all the things that are said at such congresses are worthy of saying, for a great many fads are aired and a great many rash assertions are made; indeed, it must be admitted that audacious generalisations are likely to pass as truth for some time after these gatherings, because at the moment they were made they were accepted without protest; while attractive fallacies may similarly receive undue attention. These things are the drawbacks; but, on the other hand, the death-blow is at least as often dealt to popular charlatanism. And the world gains in happiness by an interchange of hard thinking on the state of its material progress. Undoubtedly, the slighting terms which are now commonly and ignorantly employed towards the efforts of civilisation should be much modified by the sight of so many earnest men and women devoting, in their several spheres and along their manifold lines, their life to the amelioration of human conditions and to the perfecting of the human stock. We thoroughly believe in the value of the common work which is now being done by the layman and the medical man, and, despite the manifest trouble given by such congresses as those we have mentioned to men and women whose time is already over-occupied, despite the opportunities that they offer for self-advertisement and for repetition of the well-known and obvious, we are sure that the world is the better off for them.

This is a matter to be taken into consideration in connexion with the National Insurance Act—essentially an Act where medical men are required to coöperate with the public against sickness and disease for the immediate alleviation of both and their future elimination. What makes it so lamentable that medical men were not duly consulted before the provisions for the administration of the medical benefits under this measure were embodied in a Bill, is that the public will usually listen sympathetically to the medical view, when the proper exponents are given a chance to bring it into prominence. We trust that the educative effect which the recent public discussions must have had will play their part in producing in the end a medical service which will fulfil the higher objects of the Act and will truly administer medical benefits for the insured persons. If the medical profession in this country is to make its due contribution to the intellectual and physical progress of the world, if it is to continue to play that part as humanitarian, philosopher, statistician, and therapeutist which rightly belongs to it, the country must see that the professional services demanded of it are not attended with conditions stifling to enterprise, restrictive to education, or hopelessly distasteful on practical grounds.

The National Insurance Act.

ON Saturday last the Chancellor of the Exchequer contributed to the Medical Supplement of the *Nation* an article entitled "The Medical Profession and the Insurance Act," for the terms of which a great many of our readers must have been considerably prepared. In less than six months (to repeat for the sake of clearness what has been said a great many times during the last few days) more than one-quarter, perhaps one-third, of our population, will have earned the right to obtain the benefits of medical service which are so far not arranged for. The Representative Body of the British Medical Association, in response to a remarkably solid expression of opinion, has decided to break off negotiations with the Commissioners, and to offer to the public, in substitution for the scheme of medical benefits proposed under the Act, two schemes for a public service. These were published last June in readiness for the possible breakdown of arrangements with the Government, and embody the six cardinal points the demand for which has produced the present position, which it is usual to term a deadlock. The Chancellor has definitely decided that he cannot grant the six cardinal points, though he claims to have come a long way towards doing so. Without for the moment looking closely at the distance which the Chancellor has traversed towards a harmonious arrangement with the medical profession, the fact remains that there are certain things required of him which he says that he cannot do, and cannot place the Commissioners in a position to do, and cannot recommend that the Local Insurance Committees, in whom such complete discretion is vested, should be advised to do. In this position, and fully realising, as we must believe, the impossibility of granting medical benefits to the insured persons unless by an agreement with the medical profession as to the terms under which they should be granted, the Chancellor has to show how he intends to keep the promise of the

Government towards insured persons which must be redeemed in some five months.

In the article in the *Nation* he adumbrates his intentions. Mr. LLOYD GEORGE allows that the "conditions vary so widely in the different areas, according to the character of the population, their habits, their traditions, and even their geographical disposition, that one uniform system which sought to blend the inconsistent requirements of every district into one cast-iron method of administration would be hopelessly inapplicable to each and all of them." He then indicates that in the regulations shortly to be published full advantage will be taken of their flexibility, and of the great discretion in their interpretation that will be left to the Local Insurance Committees. The regulations will contain, he submits, provisions calculated to remove the legitimate anxiety of general practitioners as to the conditions under which practice in the future will be carried on, and he believes that it will be possible to arrange for such extra payment as will reward practitioners, for example, for night work and will protect them from frivolous and needless calls upon their time. We may assume, perhaps, from the general urbanity of the message that the questions of payment for operations, for the administration of anæsthetics, and for long-distance journeys will also be taken into account. But in his communication Mr. LLOYD GEORGE nowhere comes to figures. The regulations, we take it, will not contain any figures from which the medical profession may be able to gauge what is the essential pecuniary difference between the arrangements for medical benefits contemplated under the Act and the schemes which are now being perfected by the executive of the British Medical Association, but it is not definitely stated that there will be no schedule attached to them dealing with remuneration. The idea apparently is that figures will be left to the Local Insurance Committees, while it is stated that if a case is made out for further financial provision the House of Commons will be recommended to increase the grant. This recommendation, we presume, will follow (or will not follow) upon the completion of an inquiry now being undertaken by the Commissioners into the financial basis upon which the remuneration of medical men should be computed. This inquiry was entered upon by the Commissioners some months ago, and they are willing and anxious, says Mr. LLOYD GEORGE, to receive any information from private persons or organisations which will further assist them in arriving at a just conclusion. The impression must not be left that hitherto no information has been tendered by the medical profession on these points—on the contrary, the Commissioners have had much information both from the British Medical Association and other sources to guide them.

The members of the medical profession, then, are shortly to learn what the proposed regulations are, and also to become aware, in accordance with an inquiry now being made, how far their remuneration will be increased from the original offer to something more near to what is demanded. If any good is to result, there must be as little delay as possible in the issue of figures. The Commissioners by this time know how strong are the arguments with which the demands of the British Medical Association are enforced, and must realise the general enthusiasm with which emancipation from the tyranny of club practice is regarded. The claim that under the Act this tyranny is abolished will not hold good, while under the schemes of the British Medical Association there is no doubt about its destruction. "The great mistake the doctors are making," the High Chief Ranger of the Ancient Order of Foresters is reported to have said on Monday last at the High Court of his Order, "is to assume that they are to be Government officials instead of officials of the members of Approved Societies." We do not know to what medical men the Chief Ranger is referring, but the great mistake of the clubs is to suppose that ever again they will obtain medical service for their members upon such terms as hitherto; and it is mainly because members of the medical profession believe that the desire of the clubs to turn the profession into contract officials, taking their orders from High Chief Rangers, may prevail under the working of the National Insurance Act, that the provisions of that Act have been so unpopular. When the regulations appear, and not till then, the medical profession will be able to decide whether the offers made are such as would enable them to discharge efficiently, and with dignity and fair reward, the duties involved. The State Sickness Insurance Committee of the British Medical Association will, no doubt immediately upon their issue, report upon the regulations and any accompanying memorandum, to the Representative Body of the Association, who will direct the future action of the Association. Peace with honour may ensue; the result depends entirely upon how far the Chancellor has realised the strength of the opposition to the Act as it stands. This opposition is a very real thing, based upon great principles, and cannot be labelled "Syndicalism" and brushed aside.

Annotations.

"Ne quid nimis."

THE PLAGUE SITUATION IN THE WEST INDIES.

CONSIDERABLE apprehension has been experienced of late in the United States by the occurrence of plague in four West Indian islands—namely, Trinidad, Grenada, Porto Rico, and Cuba. It is more particularly the appearance of the disease in the two last named which has caused the alarm, both being under the jurisdiction of the United States. The outbreak in Porto Rico began about the middle of June at San Juan, which is a seaport town and also the capital of the island, having a population of nearly 120,000. Up to July 14th nearly 40 cases had been notified, most of them in San Juan and its suburbs, but the infection had been carried to three other towns within 20 miles of the capital, Carolina, Dorado, and Loiza, and in addition a fatal case was discovered on a trading schooner from San Juan at Arroyo. What makes the situation more serious is the fact that there is a concurrent epizootic of plague among the rats at San Juan. In Cuba two fatal cases were certified early in July at Havana and a number of suspected persons are under observation. At least three previous deaths in July are now believed to have been due to plague, two being of the pneumonic and one of the

septicæmic form. A suspicious case was also reported at Santiago de Cuba. So far no infected rats have been discovered at Havana. The source whence these two islands received their infection has not been traced. The cases which have occurred in Trinidad are thought to have owed their origin to importation of infection from Caracas or other ports in Venezuela, where plague is stated to be endemic, and where it is notorious sanitary circumstances and administration have been grossly neglected. Plague is also endemic at the ports of Para and Pernambuco in Northern Brazil, and it is just possible infection may have been carried by ship to Porto Rico or Cuba from one or other of these ports. It has to be remembered that plague is severely epidemic on the West of South America, more particularly in the states of Ecuador, Peru, and Chili, and infection may have been carried overland to the East Coast and transported to the West Indies on shipboard. As soon as the presence of plague at Porto Rico was reported prompt measures were taken by the United States Government to cope with the danger. At every port in the Gulf of Mexico and along the Atlantic coast strict precautions were ordered to be enforced, more especially the destruction of rats in the port and the careful examination of all vessels from infected places. At some ports, such as Norfolk (Virginia), a bounty of 5 cents is offered for every dead rat, and special official rat-catchers have been appointed. At New Orleans and along the Mississippi river a campaign against rats is being carried out jointly by the Louisiana State Board of Health and the health authority of the city. In February last the statements made by Dr. Howard D. King showed that the port of New Orleans was in a state of complete unpreparedness to repel the invasion of plague. Close to the river front, and within a stone's throw of ships berthed alongside the old wooden wharves, are to be found warehouses, freight depôts and grain elevators, overrun with vast hordes of rats. In the vicinity are situated blocks of dwellings occupied by poor people and lacking in most sanitary requisites. Then animals are housed in close proximity, and courts and backyards are littered with rubbish and household refuse. Foodstuffs are stored in the living apartments, and the rat lives and multiplies in intimate association with the people. Such a combination of insanitary circumstances seems to invite an invasion of plague. Perhaps under the stimulus of the threatened danger the authorities in New Orleans will be roused from their lethargy to take immediate steps to strengthen their defences. At Porto Rico, by the special request of the governor, the direction of the anti-plague measures was taken over by the officers of the Public Health and Marine Hospital Service, which has also despatched members of its staff to direct operations in Cuba. The measures now being carried out appear to be all that can be desired, and it is hoped that invasion of United States ports will be averted.

MEDICAL MEN AND THE PEERAGE.

THE relation between hereditary titles and the medical profession has never been very close. There is perhaps a closer relationship at the present time than ever before, but even so practically all the hereditary titles conferred on practising medical men have been confined to the commoner's rank of baronet. One exception is the peerage conferred on Lord Lister, the only peer created in this country for his services to medicine, though Lord Ilkeston, in addition to his eminent political work, was also a prominent and representative physician. No peer in this country, we believe, has ever adopted the practice of medicine, and in very few instances have the descendants of medical men, created baronets, followed in their father's profession. The reasons for this are fairly obvious. An American practising physician, Dr. Fairfax, of Virginia, inherited the ancient barony of Fairfax of Cameron, and was regularly summoned to Parliament, notwithstanding acceptance of American citizenship, which involved his renunciation of all hereditary distinctions. On his death a few years ago, however, his son, who was at the time engaged in a commercial house in New York, accepted the rights and privileges entailed by his succession and now sits in the House of Lords. The peerages of Burgh and Cobham, which have been in abeyance for several generations, have now three claimants, the claims of two of whom have recently been declared valid by the Committee of Privileges, and the decision now awaits His Majesty's pleasure. Of these two claimants one, Dr. R. G. Alexander, of Halifax, is a medical man, now retired from practice, who has a high record of public service, not only as a practitioner, but as visiting surgeon to the Bradford and Halifax Hospitals. He was a pioneer in the open-air treatment of consumption; has been for many years a magistrate for the West Riding of Yorkshire, like his father, the late Dr. William Alexander, before him; and is, moreover, we are informed, possessed of ample means—a fortunate circumstance should either or both peerages devolve on him, as the value and devolution of any estate connected with the rank seem uncertain.

VACCINE THERAPY.

IT is desirable that from time to time reports of the work, medical and scientific, accomplished by individual centres of activity should be issued. Nine years have elapsed since, in a small laboratory in St. Mary's Hospital, Paddington, Sir Almroth Wright inaugurated a department of "vaccine therapy," and collected a band of enthusiastic and loyal fellow-workers to assist him in his labours. The embryo of nine years ago may now be said to have attained adult life, and a "Report of the Inoculation Department" of the hospital has been published this year. It is apparent from the phraseology adopted that the report is intended for perusal by the lay as well as the professional reader. That publicity in matters medical, more especially when dealing with therapeutics, is not devoid of danger is indubitable, and we unhesitatingly deprecate the appearance of notices of this report in the columns of some of our daily newspapers. The medical profession throughout the civilised world has followed with interest the arrestive pioneer work of Sir Almroth Wright and his collaborators in the domain of bacterio-therapeutics. The educated lay mind can obtain from a perusal of such a treatise but a superficial, inadequate, and probably misleading idea even of the principles involved in a method of treatment dependent upon the complex interaction between the invading micro-organism and the infected host; while to the initiated professional mind the lacunæ in the accurate account of details, both as regards technique and summary of results, prove disappointing. The report is, admittedly, chiefly concerned with the spade work done with a view to placing vaccine therapy on a sound footing, but it is doubtful whether a true conception of results can be gained from a popular and therefore indefinite exposition. The subject of tuberculosis occupies eight pages out of a total of 16 dealing with therapeutics. We are informed that the tuberculin treatment of cases of tuberculous disease of the bones and joints has resulted in the saving of limbs to 85 out of 87 patients treated, and that in the cases of tuberculous infection of the glands out of 179 cases treated only one uncomplicated case has been handed over to the surgeon for operative interference. The treatment of cases of phthisis has not been carried out in the department to any considerable extent, as even to-day but some six or seven beds are available for this purpose. The department, however,

expresses itself as well satisfied with the measures of treatment adopted; better results in the future are predicted. As regards the scope of vaccine treatment propounded in the pages of the report, such various diseases as septicæmia, colitis, arthritis, indigestion, toothache, pneumonia, pertussis, and hay-fever find consideration. Again the department expresses itself as well satisfied with the results obtained by specific treatment in all these diseases. Dealing with 70 cases of acute lobar pneumonia, the department concludes that the death-rate among cases treated with a vaccine has been "very much less than among those not so treated during the same period of time, the decrease being greater, we think, than can be adequately accounted for by any combination of other circumstances, including the operation of chance." The suggestions of current and future lines of research must appeal to all concerned in the investigation of disease, though they are typical of the activity of most of the clinical laboratories connected with our hospitals.

THE METHODS OF ADMINISTERING MERCURY IN SYPHILIS.

AMID the excitement produced by the recent introduction of salvarsan and of its still younger relative neosalvarsan there is no little risk that the value of mercury in the treatment of syphilis may be to some extent forgotten, and therefore the paper by Dr. Douglas Freshwater, published in this issue of THE LANCET, will be of value, for it shows that mercury may be employed in a large number of ways, each suited for some particular manifestation of the disease. The majority of these methods, though detailed in text-books with more punctuality than originality, are never employed by most medical men, who restrict their use of mercury almost entirely to its administration by the mouth. It is agreed by all who are employing salvarsan that mercury may usefully be given in addition, and Dr. Freshwater's paper will serve as a timely reminder of the different modes of employing the drug. There is great scope indicated for variety of administration, for graduation of dose, and for the adoption of particular methods suitable for particular conditions.

JULY AT HOME AND ABROAD.

THE weather of the summer, so far as it has gone, has been very different from that of last year. June was cool, often rainy, and not at all sunny, and July has had a temperature bordering on the normal, a good many rainy days, and in most parts of the kingdom the total fall has been far above the average, while its sunshine has proved a comparative failure. In the metropolitan area there was more than an hour per day less than the normal, and various places over a large area in the south-west of the kingdom suffered a still greater deficiency. The south-west of England was also much more rainy than London, the majority of the days bringing more or less rain. The finest period was round about the middle of the month, when the whole country was without rain for several days. In London the shaded thermometer rose to above 80° on seven or eight afternoons, but on many it failed to reach 70°, and on the 19th it only touched 58° or 59°. As the afternoons were, on the whole, a degree cooler than usual, and the nights a degree warmer, the temperature was more equable than is generally the case in July. Over the kingdom north of the Humber there was very little really warm weather. At Aberdeen the mean maximum temperature was as much as 10° lower than in London and 8° lower than at Bath. In the extreme south-west the temperature was particularly equable. At Newquay, for instance, the average afternoon was no warmer than 64° and the average night no cooler than 55½°. London, in common with many other localities in the south-east and east of England, escaped most of the heavy rains and thunderstorms. At Bath the total rainfall was twice as much as at Westminster and Kew. Compared with this country the western and northern regions of the continent were fine and warm. At Brussels the mean maximum temperature was 75°, or 3° higher than in London, while the nights were 2° warmer. On two occasions the shaded thermomete ascended to above 90°. As might be expected, Paris was hotter than the Belgian capital, its mean maximum temperature being 76°. On no less than nine days the thermometer touched or rose above 80°, and twice ascended to 90° or a little higher. At Berlin, however, the heat was greater than at Paris. On 16 afternoons the shaded thermometer reached or exceeded 80°, and on the 28th touched 90°, while the mean warmth of the nights was as high as 60°. Long periods without rain were experienced on the continent generally, and there was much more sunshine than in the brightest part of this country. For about three weeks after the 2nd there was practically no rain either at Paris or Berlin, and very little at Brussels. A few heavy downpours both at Paris and Brussels, however, brought the aggregate above the very moderate figure in the south-east of England. Although the continent was more sunny than this country there were many cloudy and some entirely overcast days. At Paris the total number of sunny hours was no more than 204, which cannot be considered a high figure for a generally fine and dry summer month. The beginning of August was very unsettled in these islands, as well as very cool, and a fall of temperature, with less fine weather, was experienced over the nearer regions of the continent. The cyclonic systems which passed over this country during the last days of July and the first of August were, in fact, autumnal in their severity. On several parts of the coast the wind rose to the strength of a gale, and as the wind current became northerly and north-westerly on the departure of the disturbances, the temperature fell to an abnormally low figure for the time of year.

CHOLERA CARRIERS.

WE have received a copy of a report prepared by Dr. Orendiroponlo, director of the Bacteriological Laboratory of Chatby, Alexandria, published by the Conseil Sanitaire, Maritime, and Quarantenaire of Egypt, upon an examination of the stools of travellers coming from countries infected with cholera. The investigation was started owing to the following incident. On August 16th, 1911, a Belgian steamer arrived at Alexandria from Smyrna, where cholera was present. On the fifth day of the period of quarantine a little girl 5 years of age died with symptoms suggestive of cholera. At the necropsy the characteristic lesions of this disease were not found, but bacteriological examination revealed the presence of abundant vibrios, and cultures made from them were powerfully agglutinated by cholera serum. Examination of the stools of all the other persons on board the steamer showed that one woman, a servant in the family to which the dead child belonged, was a carrier of an agglutinating vibrio. Other incidents of similar nature occurring within a few days showed the danger these carriers represented for Egypt, and the Conseil Quarantenaire, on the proposition of Dr. Armand Ruffer, authorised the quarantine authorities to carry out bacteriological examinations as part of their visit in all cases where they considered it necessary. In consequence, between the dates of August 17th, 1911, and January 31st, 1912, the passengers and crews of 297 vessels were submitted to an examination of the stools as part of the routine examination for quarantine. The total

number of stools examined was 34,461, and of these 14,553 were obtained from the crews and 19,908 from passengers, mostly from those of the poorer class, although in some instances every person on the boat was examined. Vibrios were found in 63 cases, and of these 23 possessed agglutinating properties with cholera serum, while 40 did not. Of the 23 agglutinating vibrios, only 2 came from members of the crews, while of the 40 non-agglutinating 12 were found in members of the crews. The percentage of agglutinating vibrios was therefore about 0·07, but it was found that in the 44 days from August 17th to Sept. 30th, during which the epidemic was at its height, there were ten times more carriers than during the remainder of the period. In general, Dr. Crendiroponlo finds that agglutinating vibrios are only found in travellers from infected countries and only when an epidemic is at its height. During the decline of an epidemic carriers become extremely rare. It is interesting to note that the greater number of carriers were found in passengers and that the crews were but rarely affected. All the carriers were kept in quarantine until the disappearance of their vibrios, which took place in most cases within five days, though in one case they persisted for eight days. Dr. Crendiroponlo is careful to point out, however, that the limit of five to eight days must not be taken as the ordinary time of persistence of the vibrios, since they had probably been present for some time before they were discovered. In regard to the non-agglutinating vibrios, their frequency is found to be in inverse proportion to that of the agglutinating. They become more abundant as the carriers of true cholera vibrios become fewer, but both of them cease altogether when the epidemic comes to an end. Dr. Crendiroponlo gives an interesting and exhaustive account of the bacteriological characters of the vibrios obtained, including their virulence for the pigeon, liquefaction of gelatin, coagulation of milk, the production of hæmolysis and the indol reaction, and he concludes that none of them can be relied upon as a criterion for the diagnosis of the cholera vibrio. Even the fixation of complement and the agglutination reactions are not free from doubt. As a result of his observations he suggests that every carrier of vibrios, whether agglutinating or not, who comes from a place where the disease is epidemic, should be held as suspect.

CONSERVATIVE RESECTION OF BONY TUMOURS AND REPAIR BY TRANSPLANTATION.

A FULLER knowledge of the relative benignity of the myeloid form of sarcoma has led some surgeons to a conservative treatment of certain cases, consisting of resection of the tumour together with an adequate margin of healthy tissue. A further inducement to the adoption of this course of action has been added by the discovery that gaps in long bones can sometimes be successfully repaired by osseous transplantation. In *La Presse Médicale* of July 17th Dr. Jorge de Gouvéa, of Rio de Janeiro, records a case of myeloid sarcoma of the radius treated on these lines with apparent success. The patient was a woman, 25 years of age, who for two and a half years had experienced pain and swelling in the right wrist. This proved to be due to a hard, smooth growth situated in the radial epiphysis, and free from adhesion to the neighbouring soft parts. A radiograph showed that the tumour was medullary in origin; it had not invaded the wrist-joint or the surrounding tissues, and was therefore suitable for conservative resection. The operation was carried out in three stages. The first consisted of excision of the tumour together with a margin of healthy bone through a longitudinal incision on the back of the wrist. Next, a suitable length of the upper part of the left fibula with an excess of periosteum was resected and wrapped in a dry sterilised compress. Finally, the cut end of the portion of fibula was sharpened into a point of such a length and thickness as to fit into the medullary cavity of the radius, scraped out at the cut end to form a socket. The upper end of the fibula thus became a part of the wrist-joint and was sutured to the carpus with silver wire to keep it in position. The limb was dressed and immobilised in plaster of Paris which was removed after 12 days; at the same time the patient was able to walk without pain or disability. Three months later the wrist was serviceable so far that the patient was able to carry out her household duties. A microscopical examination of the tumour showed that it was a myeloid sarcoma. Of course, it is quite impossible to claim this as a cure after so brief an interval; still, the success of the operative procedure is undeniable and such as to justify further application of the method in similar cases.

BRITISH PHARMACEUTICAL CONFERENCE.

THE British Pharmaceutical Conference, which held its forty-ninth annual meeting at Edinburgh on July 30th, shows no signs of decadence as the years go by. From the quality of the papers contributed it is evident that in spite of the commercial developments of pharmacy the higher branches of the calling are not neglected. The majority of the communications were purely pharmaceutical in character, but several were of direct interest to medical practitioners. A paper by Dr. Alexander Goodall draws attention to the necessity that exists for the physiological testing of preparations of certain drugs which cannot be standardised in any other way. The results of his investigations of commercial samples of these drugs certainly seem to bear out his statement that it is unjustifiable to prescribe or dispense the tinctures of strophanthus, digitalis, or squill, unless they have been pharmacologically tested. The practitioner who prescribes solution of arsenic in 5-minim doses without knowing or caring whether each dose contains 1/40th or ¼ grain of arsenious acid is unthinkable; yet, as Dr. Goodall observes, when a chemist has made a pint of tincture of digitalis according to the Pharmacopœia no man can say what ingredient the potency of that tincture depends upon or in what proportion it may be present. The standardisation of tincture of digitalis was also usefully dealt with in a paper by Dr. Gordon Sharp and Mr. F. W. Branson. The paper by Mr. J. Haycock teaches us that concentrated tinctures are not, as a rule, so reliable as tinctures prepared according to the Pharmacopœia. The note on the iodine content of thyroid gland by Mr. N. H. Martin is an extremely useful addition to the literature of this subject. A brief account of the conference will be found in another column.

A COMPLETE CAST OF THE URETHRA DUE TO THE APPLICATION OF LUNAR CAUSTIC.

IN the *New York Medical Journal* of May 25th Dr. V. C. Pedersen has reported a curious injury to the urethra followed by the separation of a complete cast. A man, aged 28 years, who was about to be married, contracted gonorrhœa. Desiring prompt cure he applied at a drug store for a "bougie to burn it out." Whether by accident or carelessness he was given a stick of nitrate of silver. He went home and introduced this into the urethra. Excruciating pain, and then loss of sensation, followed. The caustic did not remain in the urethra many minutes, and soon pain began again with agonising chordee and profuse discharge. When he came under observation the penis was twice its normal size and there was a free discharge. The lining of the urethra seemed to be necrosed for a depth of one-sixteenth of an inch. There was considerable obstruction and he could barely urinate. An opening was

made into the deep urethra, through which the bladder was drained, and irrigation with weak solution of permanganate of potassium was performed. After four days a complete slough of the anterior urethra about 5 inches long was passed in one piece. Recovery followed, but 5 inches of the urethra were converted into a dense stricture which could not be dilated beyond a certain point. About 18 months after this accident, partly through brooding over his condition and the disappointment of the breaking of his engagement to be married, and partly in consequence of syphilis, which he contracted before the accident, he became insane and was sent to an asylum. His urethral condition was treated with sounds, and during the last year and a half no instrumentation has been necessary.

ACUTE ABDOMINAL AORTITIS AFTER SCARLET FEVER.

AT a meeting of the Société Médicale des Hôpitaux of Paris on July 12th Professor Jean Minet, of Lille, reported a case of a very rare vascular condition—acute abdominal aortitis—which followed scarlet fever. A man, aged 27 years, had a typical attack of scarlet fever, which began on July 7th, 1911. The urine did not contain albumin. The temperature became normal and convalescence was proceeding, when on the evening of the 14th the temperature rose to 100·4° F., and the patient complained of abominal pains accompanied by a sensation of weight in the epigastrium. Examination of the abdomen showed nothing to account for the pains, and they were regarded as of intestinal origin. During the night the patient slept badly and awoke several times covered with a cold perspiration. An aperient was given and produced three evacuations on the morning of the 15th, but the pains continued and became more severe. Moreover, a new symptom appeared—epigastric pulsations which were perceived by the patient himself and were clearly visible. In the afternoon he vomited twice. Auscultation of the lungs, heart, and great vessels revealed nothing abnormal. On the 16th the epigastric pulsations had assumed extraordinary proportions; they had extended to the whole abdomen, which was animated by violent movements synchronous with the radial pulse. The patient in vain endeavoured to calm them by holding his abdomen with his two hands and breathing superficially. The pains increased, the pulsations were incessant, and no position gave relief. In the afternoon while in a hot bath he suffered for ten minutes from a terrible paroxysm of pain, which radiated into the scrotum and produced a feeling as if the testicles were being crushed. M. Minet was summoned in a hurry and found him prostrated and breathing superficially and the abdomen quivering in an alarming manner. On palpation the aorta was felt to be extremely tender and animated by violent pulsations, which could be followed from the epigastrium to its bifurcation. The aorta was enlarged and described a curve with its concavity towards the right side, so that at the umbilicus it was separated from the vertebral column for a distance of three finger-breadths. The patient was rigorously kept at rest in the horizontal position, hot compresses were frequently applied to the abdomen, and bromide of ammonium was administered. On the 17th the abdominal pains and pulsations had diminished. On the 18th the improvement was increased; the pulsations were no longer perceived by the patient, but were still visible in the epigastrium. The abdominal aorta was still tender and curved as before. On the 19th the temperature had again become normal and the general condition was good; the epigastric pulsations were still present. On the 21st the aorta was smaller and its curve was less marked; it was no longer tender on palpation, although it still pulsated. On the 24th the aorta had regained its rectilinear form. On the 29th epigastric pulsations were found only after exertion, and the patient's general condition was perfect. On August 2nd he got up; the epigastric pulsations had disappeared completely and the aorta had regained its normal condition. The progress of the case was marked by a series of interesting local changes in blood pressure. Potain's sphygmometer gave the following readings in the radial artery and dorsalis pedis respectively: July 16th, 15·5 and 20·5; 17th, 15·5 and 20; 19th, 16 and 21; 21st, 17·5 and 19·5; 24th, 17·5 and 18·5; 29th, 17·5 and 18; and August 2nd, 17·5 and 17·5. Abdominal aortitis was described by Potain in 1899 and has subsequently been the subject of several French writers, but they have united acute and chronic forms in one description. Chronic aortitis is generally a result of atheroma and of arterio-sclerosis, and has no tendency to recovery. On the other hand, acute aortitis is due to various infectious and toxic conditions, and, excepting cases in which death occurs as the result of some complication, tends to recovery. No case in which it was due to scarlet fever appears to have previously been recorded.

SPECIALISM IN GENERAL AND GENITO-URINARY SURGERY IN PARTICULAR.

THE ever-increasing growth of specialism in medicine is undoubtedly regarded with suspicion and distrust by a large part of the profession, and it is certainly incumbent on the devotees of every new specialty to establish clearly the justice of its claim to that name. One of the specialties to which exception has been strongly taken in many quarters is that of urology or genito-urinary surgery. Dr. Hugh Cabot, of Boston, devoted his presidential address at the tenth annual meeting of the American Urological Association last September to answering in the affirmative the question, "Is urology entitled to be regarded as a specialty?" Dr. Cabot[1] first defines a specialty in medicine as "a portion or subdivision of the field of medicine devoted to the study of the diseases of an organ, group of organs, or group of conditions, the proper treatment of which requires knowledge and skill so much out of the ordinary as to be beyond the reach of the general practitioner." In the case of urology, as in that of gynæcology and laryngology, its claim to be regarded as a specialty began with the development of intricate and difficult methods of diagnosis and treatment. Dr. Cabot accepts the burden of showing that under the care of the average general surgeon cases of genito-urinary disease are not so well handled as the average of surgical cases; that important errors in diagnosis or mistakes in treatment occur with unusual frequency; and that the patient does not receive such sound advice or such efficient treatment as he would at the hands of specialists. This thesis he endeavours to sustain by reviewing the development of our knowledge in relation to diseases of the prostate, stone in the bladder, and diseases of the kidney. With regard to the first, he maintains that under the combined efforts of a few genito-urinary surgeons, from being a condition in which surgical treatment was unsatisfactory and operative mortality so high as to be almost prohibitive, the diagnosis of prostatic conditions has been rendered accurate, the indications for operation have been made clear, and the technique of prostatectomy, both suprapubic and perineal, has been perfected. While the operative mortality among specialists is below 6 per cent., he points out, the operative mortality among general surgeons is still above 15 per cent., and their results in the other directions do not compare favourably with

[1] Transactions of the American Urological Association, tenth annual meeting at Chicago, Illinois, Sept. 26th and 27th, 1911. Edited by Charles Greene Cumston, M.D. Printed for the Association at the Riverdale Press, Brookline, Mass. 1912. Pp. 384.

those of the specialist. As to stone in the bladder, he holds that litholapaxy is on all counts the operation of election, yet suprapubic lithotomy still holds the field among general surgeons. In reference to diseases of the kidney, owing to the scepticism of the average general surgeon in regard to cystoscopic investigation of the kidney, nephrectomy is often done in the presence of two bad kidneys. The general surgeon, he insists, frequently overlooks tuberculous kidney, and multiple operations are performed for irritable bladder when special examination would have disclosed the renal disease. In like manner the appendix or some pelvic viscus is treated for trouble really arising from stone in the kidney or ureter. Surely in important scientific centres such errors are not common. Dr. Cabot ascribes their immunity from default to the fact that "the chief has the benefit of the work of a younger assistant who devotes his time to investigation of patients supposed to have urinary lesions and supplies the necessary facts." This, he contends, is but the substitution of one form of specialism for another. He admits, also, that there is room for sound difference of opinion among unprejudiced observers as to whether these cases can be best dealt with by the urologist or under an organisation consisting of a chief and various "satellitic specialists." But in addition to the interests of the patient the question of the advancement of science enters into the argument. There is nothing, says Dr. Cabot, in the experience of the past which warrants the belief that the general surgeon, or even the operative specialist, will pursue to advantage the problems that arise in the development of systems or individuals best equipped to follow the devious border line of advance. The important discoveries, he says, in this field in the last 20 years have come from those who devoted the chief portion of their time to special work. The moral of all this argument, however, appears to be that because any particular branch of medicine or surgery requires acquaintance with particular methods and conditions, and dexterity with special apparatus which are not found with the average surgeon, that does not justify any medical man who has spent a certain time in that special study considering himself a specialist. The whole is greater than any part or combination of parts, and a devotion to special studies and methods should only be superimposed on a good general practical training, and not be undertaken from the outset of the surgeon's career. From a good general surgeon, by concentration of attention and effort in a limited field, a competent specialist may be evolved. Any other way spells disaster.

THE MEDICAL PROFESSION AND PUBLIC AFFAIRS.

THE Lord Mayor of London, who has been elected an honorary member of the West London Medico-Chirurgical Society at the West London Hospital, said that the medical profession had too long separated itself from corporate and parochial duties, and that the truest interests of the profession had suffered thereby. He hoped that the profession would no longer hold aloof, but would bring to these public duties the analytical ideas wherewith their training fitted them. The Lord Mayor's remarks are well timed. We are entering now the age when the particular mental training conferred by the pursuit of the biological sciences, of which medicine is a glorious part, is of greater importance to the progress of the community than that of either the soldier or the lawyer. The warrior served the community's need best in the age of acquisition and defence; the lawyer in the age of organisation. It is now the turn of the scientist, and especially the biologist, in the age of social development. If anyone doubts the truth of this let him note the innumerable points at which biological data are inextricably involved in all the most important and wide-reaching of modern legislative propositions.

TWO English medical men were among the party of five yachtsmen arrested last week by the German authorities as suspected spies at Eckenförde, near Kiel. Mr. Dudley Macaulay Stone was a student of St. Bartholomew's Hospital and qualified only last year. He is house surgeon at the Metropolitan Hospital, Kingsland-road, N., and is due back from his vacation next Monday. He is an expert yachtsman and amateur photographer. Dr. Norcliffe Roberts has been for several years medical officer at the London County Asylum, Cane Hill, Coulsdon, Surrey. All the so-called "suspicious circumstances" attending the case are easily explicable to those acquainted with the customs of English yachtsmen.

BY regulations issued by the Local Government Board this week it is provided that no preservative shall be added to milk or to cream containing less than 35 per cent. by weight of milk-fat at any stage from the place of production to that of delivery to the purchaser. In the case of cream containing over 35 per cent. of milk-fat, the addition of boric acid, borax, or a mixture of these preservative substances, or of hydrogen peroxide, is not prohibited by the regulations which come into force on Oct. 1st next, but a system of declaration will be required to be followed by all persons dealing with such cream for the purpose of sale for human consumption on and after Jan. 1st, 1913.

THE King has been pleased to grant to the British Medical Benevolent Fund the title of Royal, so that it will henceforth be known as the Royal Medical Benevolent Fund.

WE regret to record the death of Mr. Arthur Trehern Norton, C.B., F.R.C.S. Eng., consulting surgeon to St. Mary's Hospital. We shall publish an obituary notice in a later issue.

INDUSTRIAL EMPLOYMENT OF MARRIED WOMEN:

ITS INFLUENCE ON THE BIRTH-RATE AND THE SEX RATIO AT BIRTH.

BY HUGH R. JONES, M.A., M.D. CANTAB., B.SC. LOND.

THERE is a widespread belief in Lancashire that the proportion of girl-infants is much larger in those districts where many married women are employed in factories than elsewhere. It occurred to me that an inquiry into the truth of the belief would not be uninteresting.

The usual method of estimating the effects on life of different social and industrial conditions is by a comparison of mortality rates, either of the death-rates at all ages or of specifically calculated rates of occupational mortality. The effects upon health are more difficult of measurement, but may be estimated, to some extent at least, by the sickness returns of the large Friendly Societies. These methods, however, only measure the direct effects, those effects which are personal to the individual and determined by his lifetime. But the remoter effects, affecting succeeding generations, are of infinitely greater importance, and are made manifest by differences in the number and quality of the offspring.

The birth-rate may be regarded as a measure of the cumulative effect of environment on those who attain nubile age. For comparative purposes the birth-rate must be analysed and corrected, especially for the age and sex constitution of population and its marital condition. A high birth-rate connotes not only high fertility, but also a large female population at child-bearing ages and industrial prosperity. Fertility is most conveniently measured by the number of

births per 1000 females aged 15–45 years, but the number of births per 1000 married women at that age-period would, however, be a more accurate measure.

The influence of the industrial employment of married women on infantile mortality has been repeatedly investigated. The rate of infantile mortality serves a double function: it measures in some degree the quality of the offspring as affected by parentage, by the mortality from developmental diseases, and from diseases acquired during the period of intra-uterine life; and it also measures the influence of environment during the year of infancy by the mortality from diseases which are attributable to causes operating after birth. But in the investigations which have been made little or no attention has been paid to the relation which exists between the birth-rate and the rate of infantile mortality. I pointed out in 1892 that high infantile mortality is associated with high birth-rates, but I did not then appreciate the closeness of the association.

A falling birth-rate is always attended with a falling rate of infantile mortality, and an increase in the birth-rate is attended with a coincident rise in the rate of infantile mortality. In the investigation of the influence of efficient sewerage on mortality it was found that at Croydon, where the general mortality had decreased 20 per cent., the mortality of infants had increased 10 per cent., "but the altered circumstances of the town had brought about a largely increased birth-rate."

On comparing the available international statistics for the quinquennia 1881–85 and 1901–05, it will be noticed that in every case where the birth-rate has fallen there has been a decrease in the rate of infantile mortality and *vice versâ*. On correlating these differences the coefficient of correlation attains the high value of $0 \cdot 628 \pm 0 \cdot 008$.

If the statistics of the 635 registration districts into which England and Wales is divided be analysed, the following table is obtained:—

Number of districts.	Rate of infantile mortality.	Mean birth-rate.	Number of districts.	Rate of infantile mortality.	Mean birth-rate.
31	Under 90	24·6	49	141—	28·7
75	91—	24·8	37	151—	30·5
111	101—	25·0	34	161—	33·2
92	111—	25·8	36	171—	32·6
77	121—	26·4	28	181 and over.	33·3
65	131—	28·3			
			635	154	29·9

The same association between birth-rate and rate of infantile mortality is shown by comparing fertility rates and rates of infantile mortality in county areas.

Number of counties.	Fertility.	Average rates of infantile mortality.	Number of counties.	Rate of infantile mortality.	Average fertility.
4	140 and over	163	9	161 and over.	138
8	130—	148	11	141—	127
13	120—	137	12	121—	115
14	110—	126	13	105 and over.	116
6	93 and over	124			
			E. and W.	154	123

The coefficients of correlation between fertility rates and the rates of infantile mortality were calculated with the following results:—

In 66 districts with decennial births exceeding 40,000—
$r = 0 \cdot 36 \pm 0 \cdot 07$

In 91 districts with decennial births 10,000–20,000—
$r = 0 \cdot 41 \pm 0 \cdot 06$

In the 16 registration districts of Staffordshire—
$r = 0 \cdot 56 \pm 0 \cdot 12$

Heron, using the figures for London parishes (1901) found the coefficient of correlation to be 0·5 between the rates of infantile mortality and the birth-rates.

It may therefore be inferred with confidence that the rate of infantile mortality is to a certain extent dependent on the birth-rate.

If the tables which have been prepared to demonstrate the influence of the industrial employment of women on the rate of infantile mortality be extended so as to include the statistics of the birth-rates and the sex ratio at birth, it is seen from the following summaries that the birth-rate and the sex ratio are lower in districts in which there is much employment of married women than in districts where the amount of such employment is small.

1. (Newman: Infantile Mortality.)	M. and W.* women employed per cent.	Rate of infantile mortality.	Fertility.†	Sex ratio.†
8 textile towns	26·6	182	114	1032
8 non-textile towns ...	7·4	150	145	1042

2. (Report Physical Deterioration Committee.)	M. and W. women employed per cent.	Rate of infantile mortality.	Birth-rate.	Sex ratio.†
7 metal towns	10·7	185	35·48	1040
7 textile towns	21·5	170	28·15	1033

3. (Welton: England's Recent Progress.)	M and W. women employed per cent.	Rate of infantile mortality.	Births per 1000 married.	Sex ratio.
49 registration districts (9 colliery districts) ...	9–10	163	29·22	1042
22 textile registration districts	20–25	162	29·73	1026

4. (Staffordshire). M. and W. women employed per cent.	Rate of infantile mortality.	Birth-rate.
12 and over	188	29·4
6–12	154	31·0
Under 6	143	33·4

* Married and widowed. † These figures refer to registration districts.

A comparison of the birth-rates with the percentage of married women employed in the urban districts of Lancashire gave the following result:—

Percentage employed.	Average birth-rate.	Percentage employed.	Average birth-rate.
Under 5	30·5	15–20	24·7
5–10	28·7	20 and over	22·9
10–15	25·9	Over 30	22·5

I calculated also the following coefficients of correlation:—

Between married women employed and birth-rate (Staffordshire)—
$r = -0 \cdot 21 \pm 0 \cdot 11$.

Between fertility and sex ratio (Lancashire)—
$r = 0 \cdot 102 \mp 0 \cdot 018$.

Between married women employed and sex ratio—
$r = -0 \cdot 35 \pm 0 \cdot 12$ (Lancashire).
$r = -0 \cdot 31 \pm 0 \cdot 14$ (Staffordshire).

Between married women employed and the rate of infantile mortality—
$r = 0 \cdot 37 \pm 0 \cdot 097$ (Staffordshire).
$r = 0 \cdot 34 \pm 0 \cdot 07$ (63 districts).

Between birth-rate and rate of infantile mortality (22 textile districts)—
$r = 0 \cdot 215 \pm 0 \cdot 076$.

The conclusions to be drawn from this inquiry are therefore:—

1. That the employment of married women in industrial occupations tends to diminish the birth-rate.

2. That such employment tends to the birth of a larger

proportion of girl infants. I do not discuss the significance of the sex ratio.

3. That low birth-rates tend to the birth of a larger proportion of girl infants.

4. That the rate of infantile mortality is higher as the proportion of employed married women rises. The question naturally follows whether the higher mortality is due to the quality of the offspring or to the environment during the year of infancy or to both factors. To answer it requires a more detailed analysis of the causes of death in infancy than is included in the Decennial Report of the Registrar-General, but it may be pointed out that the mortality from puerperal fever and childbirth is higher in the textile than in the non-textile districts or in the colliery districts, being 6·74 against 5·12 respectively, and therefore the quality of the offspring is likely to have suffered.

Lastly, I would call attention to the relative influence which the birth-rate and the rate of infantile mortality exert on the number of survivors. With a low birth-rate and a low rate of infantile mortality the number of survivors out of 1000 infants born is greater than if a high birth-rate and a high rate of infantile mortality prevail. But if the survivors out of the number of births per 10,000 inhabitants be calculated, it is found that the number of survivors is greater with a high birth-rate and a high rate of infantile mortality than with a low birth-rate and a low rate of infantile mortality.

Birth-rate.	Average rate of infantile mortality.	Survivors aged 5 out of 1000 infants born.	Survivors aged 5 out of births per 1000.
22·0	119	841	185
24·0	114	842	202
26·0	121	831	216
28·0	138	803	225
30·0	161	778	233
32·0	168	757	242
34·0	176	745	253
36·0	175	748	269

The figures and illustrations have been taken wholesale from published papers and books, and not selected *ad hoc*; I hope later to elaborate the arguments.

Liverpool.

OBSERVATIONS ON THE NEURON.

BY HARRY CAMPBELL, M.D. LOND., F.R.C.P. LOND.,
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IV.[1]

Coördination a Function of the Synapse.

WE have seen that normally all nerve-impulses originate in neuro-ceptors, either peripheral or central. The function of the nervous system, however, is something more than merely to generate impulses: the centrally initiated impulses need to be generated in orderly fashion so as to insure adaptive reactions in the non-nervous parts of the body, and, above all, proper coördination of muscular activity. This implies orderly synaptic interactions—i.e., orderly interactions between central mittors and ceptors. The activities of the central nervous system essentially consist of actuations and inhibitions of ceptors. These we may metaphorically figure to ourselves as so many synaptic linkings and unlinkings, producing a series of constantly changing kaleidoscopic patterns.

A question of interest, but like all else pertaining to the synapse, a purely speculative one, is whether a particular mittor is capable of exciting only one ceptor, or whether it may dominate more than one, and so, by a kind of telephonic exchange, send impulses now to one ceptor, now to another. Such an arrangement would enable an impulse to be "shunted" into different paths according to the will, so to speak, of the mittor, acting after the manner of the telephone operator, and it would necessitate, it will be observed, a plurality of intra-neuronic paths. It could, however, only operate within limits, seeing that among neighbouring ceptors many belong to the same axi-fibril and thus produce the same end-effect. There would obviously be no advantage in having a system of exchange between the ceptors of such a group; the exchange to be effective would have to be between ceptors dominating different routes (within the same or within different neurons), thus producing, when stimulated, different end-effects. These considerations militate somewhat against the theory of telephonic exchange put forward by me in THE LANCET in 1906.[2]

It has been suggested that the synaptic linkings and unlinkings take place by a species of amœboid movements, comparable to those of the tentacles of the octopus. The inadequacy of this view is evident when we consider the enormous rate and complexity of inter-neuronic reactions.

It is more easy to conceive of synaptic linkings as produced by the explosion of ceptors when actuated by their mittors. Whether a ceptor shall, or shall not, explode must in the main depend upon whether it does, or does not, receive a stimulus from its mittor. In the section on inhibition I suggest that among the central ceptors are some which are placed in relation with contractile organs, by means of which neuron processes are retracted.

The manner in which the ceptor explodes depends largely upon its innate endowment. In the last section we saw reason to attribute to the central ceptors many of the peculiarities of arc-, as distinguished from trunk-, conduction, such as the phenomenon of rhythmic-discharge, after-discharge, and refractory phase. We must, in fact, postulate a considerable degree of autonomy on the part of the central ceptors. Apart from this, their manner of explosion is influenced by (*a*) the kind of stimulus they receive from the mittors; and (*b*) the state of the blood.

(*a*) Whether a central ceptor shall explode mildly or violently presumably largely depends upon whether it receives from its mittor a weak or a strong stimulus.

(*b*) The influence of the blood, including that of drugs, upon nervous activity is considered in another section. That influence is profound. I should expect it to operate mainly through the central ceptors.

As to the nature of the stimulus by which the mittor discharges its ceptor, I judge it to consist of a chemical explosion, but of a milder order than that of the ceptor. The mittor-explosion presumably bears the same kind of relation to the ceptor-explosion as the ignition spark in a gun bears to the explosion which it excites. What is needed is the liberation in the ceptor, by means of a specific mittor stimulus, of sufficient energy to start an impulse along its intra-neuronic course. Were the explosion in the mittor as powerful as that in the ceptor the impulse would, one would expect, pass from the mittor backwards. Probably the nature of the explosion within the mittor is different from that within the ceptor, since the function of each is so different.

It is probable that the central mittors and ceptors are endowed with different physiological characters in different species of neuron, manifesting, e.g., specificness of response to different reagents circulating in the blood. I judge it to be chiefly by its action on these structures that the blood influences synaptic interactions.

Although at present we can do little more than speculate concerning the exact happenings at the synapse, this much seems certain: it is in the region of the synapse that coördination is effected; here it is that all new combinations are brought about; and here also occur those mysterious activities which issue in consciousness.

Inhibition.

A remarkable function of the nervous system is that of inhibiting activity, either of the nervous system itself, or of some non-nervous tissue.

So far as muscular activity is concerned, inhibition may be effected in one of two ways: (1) directly; (2) indirectly.

1. Inhibition of the heart-beat through the vagus is thought to afford an instance of direct inhibition of muscular activity. It is supposed that nerve-impulses striking the cardiac muscle-fibres modify their nutrition in an anabolic direction, so causing a slackening of the beat. The possibility of a final "interstitial" neuron mediating between the post-ganglionic neuron and the muscle-fibres must not, however, be lost sight of. In such a case the inhibition

[1] Articles I., II., and III. were published in THE LANCET of July 13th (p. 102) and 20th (p. 170) and August 3rd (p. 324) respectively.

[2] THE LANCET, July 28th, 1906, p. 255.

might be effected at the peripheral synapse. As regards voluntary muscle there is no evidence among the vertebrata that a contracted voluntary muscle can be inhibited directly—i.e., by stimulating its *motor nerve*. In the crayfish (astacus), however, contracted striated muscle can be inhibited in this way. I do not know whether the voluntary muscle of this creature contains interstitial neurons. While it is certain that glandular activity may be increased through specific secretory nerve-fibres, it is not known whether secretory fibres having an inhibitory function exist.

2. When in a vertebrate a contracted voluntary muscle is inhibited, the effect is produced through a nervous centre, by the partial or complete shutting off of impulses to the muscle—it is due, i.e., to an indirect inhibition of *nervous activity*. A good instance of this kind of inhibition is afforded by "reciprocal innervation." All coördinate movements involve contraction of some muscles and relaxation of others. In turning the eyes to one side, in closing the lids, in flexing the fingers, some muscles are made to contract, others to relax. In such reciprocal innervation there is an augmentation of impulses along certain peripheral motor neurons, and an inhibition of impulses along certain others.

FIG. 33.

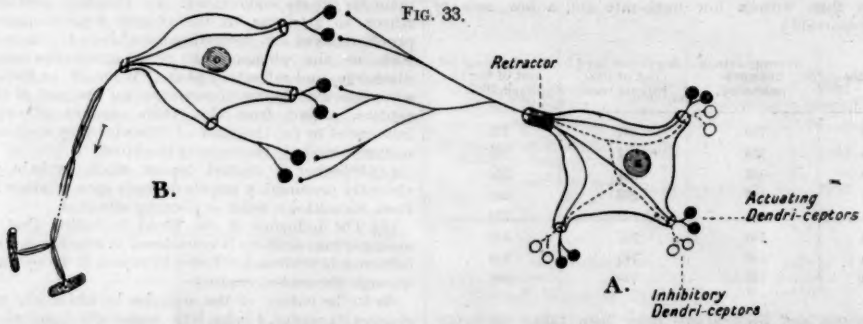

Diagram showing how a peripheral motor neuron (B) forming "a final common path" can be actuated or inhibited from many different directions by means of an intercalary neuron (A). The latter is represented as having two sets of fibrils, actuating and inhibiting, with corresponding ceptors. The actuating fibrils are represented by continuous lines, the inhibitory fibrils by interrupted lines; impulses travelling along the latter cause the root of the axon to retract, and thus to unlink the peripheral motor neuron, which for the time being is completely cut off from the rest of the nervous system. For the sake of simplicity, only one common actuating fibril and one common inhibitory fibril are represented. We may suppose that several such exist in each neuron. Observe that with such a mechanism as is here suggested the peripheral motor neuron can be actuated or inhibited from several different directions.

Many attempts have been made to explain this "central inhibition." The simplest way of accounting for it is by reference to the synapse. We may assume a synaptic unlinking of the lower motor neuron to take place. Such an unlinking might be effected either (*a*) by an axonic or (*b*) by a dentritic shortening.

(*a*) Inhibition may be effected by the shortening of the axon of an intercalary neuron, such axon being placed in relation with a peripheral motor neuron. (Fig. 33.) We may suppose the axon to be furnished at its root with a contractile organ which retracts the axon through the medium of fibrils having their own special neuro-ceptors. If we suppose these inhibitory fibrils to form a common network in the neurosome, such as is said to obtain in the medusa, then, just as in this creature the musculature of the swimming bell may be made to contract by the stimulation of any one of its numerous ceptors, so might the intercalary axon be made to contract through any one of its many inhibitory ceptors. In this way the peripheral motor neuron could be partly, or completely, insulated from the central nervous system.

This hypothesis postulates an intercalary cell—a cell, namely, capable of conveying impulses from many different directions and transmitting them to the "final common path," or, on the other hand, of shutting off from "the final common path" impulses streaming towards it from all directions. It also compels us to postulate for such an intercalary neuron a short axon: a long axoned neuron having axonic relations with widely separate neurons could not well bring about the desired unlinking. Short axoned neurons are believed by Cajal to be scarce in the spinal cord; the supposed short axoned neurons are, he contends, really long axoned neurons in which only the first part of the axon has taken the stain.

(*b*) The scarcity of short-axoned neurons in the spinal cord renders it more probable that inhibition is effected by a retraction of the dendrites. In favour of this view is their comparative shortness, which would enable them to retract readily. Moreover, while retraction of an axon implies complete insulation of the neuron to which it belongs, by means of dendritic retraction any one of the intra-neuronic routes could be separately insulated, as well as all of them together: retraction of a dendrite trunk would insulate all the intra-neuronic paths pertaining to it (Fig. 34), whereas insulation of individual intra-neuronic paths might be effected by retraction of one or other of the ultimate dendrite branches (Fig. 35).

It will be observed that, on the hypothesis of axonic or dendritic retraction, inhibition is just as much an active process (one, i.e., involving the expenditure of nervous energy) as actuation.

Sherrington has shown that the inhibition which takes place in reciprocal innervation is destroyed both by strychnine and tetanus toxin. These two poisons convert the normal inhibitory into an excitatory effect. In a person thus poisoned a slight touch on the skin may bring on a widespread spasm in which no relaxation of antagonistic muscles occurs. We may explain this phenomenon by assuming that the poisons paralyse inhibitory ceptors, and thus lead to a torrential outflow of impulses into the peripheral motor neurons.

The Nutrition of the Neuron.

Although the neuron possesses some power of repair after injury, it has no power of reproduction. Every neuron within the nervous system is adapted to last the entire life of the organism of which it forms a part. Its span of life may thus exceed a century. There still survive human neurons which were laid down at the same time as some of Nelson's men-of-war.

The nutrition of the neuron is in large degree controlled by the nucleus. When a process, or a portion of it, is severed from the neurosome the severed portion disintegrates; when the nucleus is destroyed or extruded from the neurosome the entire neuron dies. The dendrites are in closer nutritional union with the neurosome than is the axon, for the cytoplasm of the neurosome, often containing Nissl's granules, is continued into them. They appear, in fact, to be mere extrusions of the neurosome, and are consequently often spoken of as the "protoplasmic processes." The axon, on the other hand, is not only devoid of cytoplasm and Nissl's granules, but is generally provided with a myeline sheath, if not with a neurolemma.

That nutritional differences exist between the neurosome and its short dendrites, on the one hand, and the long axon, on the other, is shown by the fact that the former are more plentifully supplied with blood than the latter. The grey

matter in the brain and spinal cord is much more vascular than the white matter, and this doubtless indicates a corresponding difference in metabolic activity, especially in regard to the using up of oxygen. This difference is chiefly due to the fact that it is in the region of the synapse that centrally initiated impulses are generated.

We still have much to learn regarding the nature of the plasma environing the neurons. Observe that it is by no means the same for all neurons. It differs, e.g., for those of the retina, those of the olfactory mucous membrane, and, again, for those of Auerbach's plexus. Nay, it may even differ for the different parts of the same neuron. In the case of the peripheral motor neurons, e.g., it differs alike for neurosome, for axon, and for motor-end organ. This fact must be taken into consideration when we find one part of a neuron diseased rather than another. In such cases

FIG. 34.

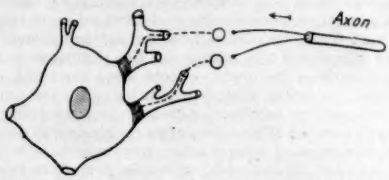

Diagram to illustrate a theory of inhibition. An inhibitory fibril is shown passing to a contractile organ at root of dendrite. This contractile organ by its contraction inhibits the entire dendrite.

FIG. 35.

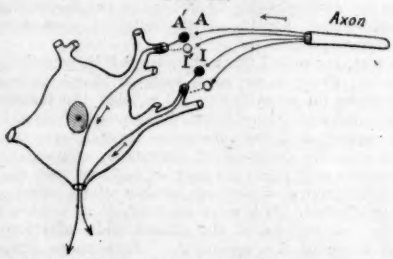

Diagram to illustrate a theory of inhibition. A, Mittor of actuating fibril. A', Ceptor of actuated fibril. I, Mittor of inhibitory fibril. I', Ceptor of inhibitory fibril passing to organ (at extremity of dendrite) which by its contraction insulates the extremity of the dendrite.

the electivity may be due either to differences of resisting power on the part of different portions of the neuron, or to local peculiarities of the circulation, causing the poison to be conveyed in greater amount to some parts of the neuron than to others.

There is evidence that the plasma environing the neurons within the central nervous system is of a special character. The neurosomes are contained within large "peri-cellular" lymph spaces, which spaces Mott believes to be connected with the subarachnoid space, and, like it, to contain cerebro-spinal fluid. He bases this opinion chiefly on the fact that sections examined microscopically show the spaces in question to be devoid of coagulable albumin, which is known to be absent from the cerebro-spinal fluid. This fact, even though it may not prove Mott's conclusion, is noteworthy. Obviously the behaviour of neurons is largely determined by the composition of their environing plasma. They are peculiarly susceptible to the influence of chemical reagents.

We know very little regarding the metabolism of the neuron. There is evidence that the neurosome and dendrites are continually elaborating from the circumambient plasma substances which are used up during the activities of its dendri- and somato-ceptors. These substances are stored away in the interstices of the cytoplasm and are in part precipitated post-mortem in the form of Nissl's granules.

The neurosomes and dendrites are highly absorbent of oxygen. A large supply of this gas is needful for the generation of nerve-impulses, and it is probable that the great vascularity of the grey matter has for its object the provision of an abundant supply of oxygen rather than of nutriment. The absorbed oxygen is stored away in the neurosomes and dendrites, and (as in the case of other cells) it is this stored oxygen—not the oxygen in the environing plasma—which is utilised during katabolism and given off as carbonic acid. The exhaustion of the neuron from excessive work is essentially due to the using up of this store of oxygen, which is much more readily exhausted than the reserve of nutriment. Under physiological conditions the latter, though it may be drawn upon to the extent of causing Nissl's granules to disappear, is never wholly used up.

Fatigue paralysis is to be distinguished from exhaustion paralysis; the one is due to the accumulation of waste-products, the other to the exhaustion of oxygen and (in extreme experimental cases only) of nutriment material. Verworn holds that the "refractory" period exhibited by the neuron depends upon oxygen exhaustion. After the ceptor has generated an impulse, and thereby used up its stored oxygen, it is, we may suppose, incapable of generating another impulse until it has accumulated a fresh supply either from the neurosome or from the environing plasma. It is significant in this connexion that deficiency in the supply causes a lengthening of the refractory period.

Some narcotics appear to act by preventing the neurosome from absorbing oxygen, for when neurons which have been exhausted of oxygen are brought under the influence of such narcotics they are unable to absorb a fresh supply. The poisoning effect of carbonic oxide is largely due to the oxy-anæmia which it induces.

Cutting off the arterial blood, and therefore oxygen, from a nerve centre induces an initial phase of excitability, followed by paralysis. Leonard Hill was able to excite unilateral convulsions in himself by compressing one carotid.

Once the nerve-impulse is generated, whether in the peripheral or the central ceptors, but little extra energy is required for its transmission along its neuro-fibrillary course. Hence the neuro-fibrils use up comparatively little oxygen, and are fairly immune from fatigue. This is shown by studying the transmission of nerve-impulses along nerves. The nerve-impulse is not, however, a simple physical phenomenon. Compared with an electric current its progress is sluggish, being no more than some 30 metres a second: it is, in fact, a vital phenomenon—a product of neuro-metabolism. If a nerve is tetanised in an atmosphere of nitrogen it soon loses its irritability. On the admission of oxygen this properly is rapidly recovered: from which we learn that oxygen is stored up in nerve fibres and that it is needful for the transmission of impulses along them.

There is evidence that peripheral mittors (motor end-organs) are more readily fatigued, and require a larger supply of oxygen than their axons. The question whether the like is true of periphero-ceptors is of great interest, but one which has not yet been put to experimental test. I should expect such to be the case.

The Reaction of the Neuron to Chemical Reagents.

The nervous system is attuned to respond in definite ways to a variety of plasmic stimuli which are normally ceaselessly acting upon it. Witness the effect on the respiratory movements of an excess of carbonic acid in the blood. Witness, again, the profound alterations in temperament which are induced by blood changes of sexual origin.

The susceptibility of the nervous system to chemical agencies is well shown by its reaction to drugs. These reactions throw considerable light on the physiology of the neuron, and from this point of view are worthy of close study.

The number of different kinds of neurons in the mammalian nervous system is to be reckoned by the score, if not by the hundred, and it is safe to say that each kind responds to chemical stimuli in a manner peculiar to itself. This specificness of response often gives evidence of structural differences where none can be discerned by the most skilful microscopic examination. No differences can be made out, e.g., between the sensory- and the motor-fibres of the peripheral nerves, and yet it may happen that a poison circulating in the blood picks out the one and leaves the other untouched; nor, again, can they be detected between the mittors of the sympathetic fibres to the dilator pupillæ, which are stimulated by cocaine, and those of the third nerve-fibres to the sphincter pupillæ, which are not affected by it. Nay, more than this, not only do chemical substances act differently on different varieties of neurons,

but even on different parts of the same neuron. This fact is well brought out by the study of their action on the peripheral nervous system, both cerebro-spinal and autonomic. Here it is found that a drug may focus its influence either upon the periphero-ceptor, the afferent fibre, the efferent fibre, or the mittor. From which it seems safe to argue that the ceptors, the mittors, and the fibres of the central nervous system exhibit a like specificness of response to chemical agencies. I desire to emphasise this point.

A few instances of the action of drugs on the peripheral nervous system may now be cited.

The cerebro-spinal nerves.—(*a*) *The peripheral sensory neurons.*—*The periphero-ceptors.*—Cocaine *paralyses* certain of these. Those subserving pain and touch are chiefly affected, those subserving heat and cold escape. When applied to the nose this drug destroys the sense of smell; to the tongue, the ability to taste bitter and, to some extent, sweet and acid substances, leaving unaffected the ability to taste anything salt. Other drugs have the opposite effect, *stimulating* the periphero-ceptors and thereby causing an excitation of reflexes. Such are veratrine and aconitine. Veratrine applied to the mucous membrane of the nose and throat causes violent sneezing and coughing. Aconitine has the further effect of increasing the flow of saliva and may even set up vomiting.

We thus have evidence that the various classes of periphero-ceptors respond specifically to chemical reagents, being stimulated by some, paralysed by others. From this I judge that the central ceptors display a like specificness. I think it probable that the action of drugs upon the central nervous system is in large measure produced through these structures.

Sensory fibres.—Cocaine applied to a nerve-trunk paralyses the sensory fibres, not the motor. Similarly, in some forms of peripheral neuritis, which is always of toxic origin, the sensory fibres rather than the motor are affected. Quinine acts upon certain of the peripheral sensory neurons, but it is not easy to say which part of the affected neurons is chiefly involved. This drug causes tinnitus and deafness, which may be complete for a time, and may even induce degeneration in the spiral ganglion (of the cochlear nerve). It may also cause visual disturbances, especially in regard to colour vision, and even set up degeneration of the retina and optic nerve. In tobacco amblyopia we have evidence of a poison which exercises a specific toxic effect upon the central fibres of the optic nerve.

(*b*) *Voluntary motor neurons.*—*Neuro-mittors.*—Drugs which were formerly supposed to act upon the motor nerve end-organs of voluntary muscle are now thought to act upon the myo-neural junction, a kind of ceptor which mediates between the neuro-mittors and the proper contractile substance of the muscle-fibres. This view is suggested by the fact that such drugs produce their motor effect even after section and degeneration of the motor nerves. These ceptors would appear to bear much the same relation to the muscle-cell as the neuro-ceptors do to the neuron-cell. We know little concerning the action of drugs on the motor end-plates (neuro-mittors) of voluntary muscle. Ammonium chloride is said to paralyse them in the frog, but there is no undoubted instance of their being specifically paralysed in the mammal.

Myo-ceptors.—Nicotine, aconitine, and physostigmatine *stimulate* the ceptors of voluntary muscles and cause muscular twitchings, which, in the case of the last, may almost amount to convulsions. That these effects are not produced through the medium of the nervous system is shown by the fact that even after section and degeneration of the motor nerves they can still be obtained. Curare and conium have the opposite effect, *paralysing* the myo-ceptors. These structures are readily fatigued, and it has been shown that curare and conium hasten the process. It is possible that the muscular weakness which occurs in myasthenia gravis is due to the action of a kindred poison.

Muscle substance.—Some drugs act directly on voluntary muscle. Such a one is veratrine, which so influences the muscle-fibres that after being momentarily stimulated they remain contracted for twenty times the normal period. A similar phenomenon is observed in Thomsen's disease.

Autonomic nerves.—(*a*) *The periphery sensory neurons.*—Those belonging to the autonomic system are similar to those of the cerebro-spinal system. Little is known of their reaction to drugs. Strychnine converts the vaso-dilator influence of the depressor nerve into a vaso-constrictor influence, but this effect is probably due to a central change. The like is probably true of the anodyne effect on visceral pain of opium and similar drugs.

(*b*) *The efferent autonomic nerve strands.*—The selective action of drugs on this part of the nervous system is very pronounced. It is observed not only in respect of particular strands, but likewise in respect of the various parts of individual autonomic neurons.

This fact is well illustrated in the case of the autonomic system of the eye. The eye gets its autonomic nerve-fibres through the cervical sympathetic and the third nerve. Stimulation of the cervical sympathetic produces dilatation of the pupil, elevation of the upper lids, and protrusion (real or apparent) of the eyeball; paralysis of it causes the reverse. On the other hand, stimulation of the third nerve causes contraction of the pupil; paralysis of it, dilatation. Now both cocaine and adrenalin produce the same ocular effect as is obtained by stimulating the cervical sympathetic, the autonomic fibres of the third nerve being left unaffected. These two drugs, however, act in different ways. Cocaine stimulates the mittors of the sympathetic, for it does not produce its ocular effects when the trunk only is cocainised, nor, again, after degeneration of the terminals has been produced by section. Adrenalin, on the other hand, produces its ocular effects even after paralysis and degeneration of the cervical sympathetic, from which it is argued that it does not, like cocaine, stimulate nerve-terminals, but myo-ceptors. There is, however, a possible fallacy in this argument, since there is no certain evidence that the sympathetic fibres do not act through the medium of "interstitial" neurons embedded among the unstriped muscle-fibres. No such doubt attaches to the action of cocaine. It does not seem possible to avoid the conclusion that this drug stimulates certain of the efferent nerve-terminals (neuro-mittors) within the orbit.

This fact, for such I think we may call it, is an important one for us. From it we seem justified in concluding that neuro-mittors do actually exist, i.e., that the terminals of axi-fibrils differ structurally and functionally from axi-fibrils in their course, and that substances circulating in the blood may influence the function of neurons by stimulating their neuro-mittors only; and not only so, but that they may pick out specific groups of mittors, leaving others, often closely allied, unaffected. Is it not remarkable that cocaine should stimulate the mittors of the dilator iridis and leave unaffected those of the sphincter? Both these diminutive muscles are made up of unstriped fibres in close anatomical proximity; both are supplied by autonomic nerve-fibres. Nevertheless, the mittors of the one respond to chemical reagents very differently from those of the others. This fact shows how limited, after all, is the information regarding the structure of the neuron afforded by the microscope, even in the hands of its most skilful manipulator, for no one has hitherto detected any neuro-mittors in connexion with either of the sets of nerve-fibres referred to, much less any difference between them.

Now, if neuro-mittors displaying specific excitability as regards chemical reagents exist in the peripheral nervous system, we can hardly doubt that they exist also in the central nervous system. I submit we may safely conclude that central as well as peripheral neuro-mittors may be stimulated or paralysed by chemical substances circulating in the blood.

In conclusion, the action of drugs on the peripheral nervous system, voluntary and autonomic, proves the existence of peripheral ceptors and mittors. From this we infer that the central neurons are provided with similar ceptors and mittors. Further, inasmuch as the peripheral ceptors and mittors respond specifically to chemical substances, both as regards stimulation and paralysis, so that it is in this way possible to classify them into different groups, we infer that the like is true of the central ceptors and mittors.

Now the central neurons are delicately responsive to the action of substances, normal and abnormal, circulating in the blood. So far at least as the normal synaptic activities are concerned, I should expect this response to be essentially dependent upon specificness of reaction on the part of ceptors and mittors. The like is probably in great measure true of the response to poisons, although in this case it appears to me probable that the entire neuron, including its neurosome and processes, is more apt to respond.

BRITISH PHARMACEUTICAL CONFERENCE.

Presidential Address.

THE forty-ninth annual meeting of the British Pharmaceutical Conference was opened at the University Union, Edinburgh, on July 30th, when, after an address of welcome had been given on behalf of the municipality, Sir EDWARD EVANS (Liverpool) delivered his presidential address, in which he dealt with a variety of topics of pharmaceutical interest, but mainly with the question of the cultivation of drugs. Having just returned from a visit to the United States he said he had been very much struck, in making some inquiries, by the fact that the Government, in addition to being very particular as to the purity of all drugs sold in that country, had a bureau of plant industry in connexion with the United States Department of Agriculture. It was this department that had contributed in recent years so largely to the use of barks, drugs, and roots of American origin, and thus had to some extent replaced the older drugs so familiar to us in our early days. He had been informed by Mr. True, the physiologist in charge at Washington, that there appeared to be no reason to believe that cultivation in general diminished the active principle in alkaloid-bearing plants. There was probably as much spontaneous variation in chemical properties as in form and size among plants, as was being found from study of alkaloid-bearing plants, volatile oil plants, and others. The soil characteristics in some cases were influential in determining the amount of active principle present, and perhaps in other cases the latitude was even more important, probably due to the great amount of heat demanded. Proceeding, Sir Edward Evans said he thought it possible that the conference might think it worthy of consideration that our own Government should form in the Board of Agriculture a department such as exists in the United States to further the growth in this country of herbs, roots, and barks; the small holdings or allotments might be the channels of carrying such a plan into effect. He pointed out that the soil of this country was adaptable for this purpose, as what it did produce was superior to any produced elsewhere—for instance, digitalis, henbane, colchicum, valerian, belladonna, to say nothing of peppermint and lavender. With regard to the practice of pharmacy, he maintained that the Government should have given more protection than it did, as it was in the interests of the country as a whole that there should be within easy reach of all a qualified pharmacist giving individual attention to the business. Alluding to the State Insurance scheme, he said it was immaterial now to discuss the principles of State insurance, but whatever the views of pharmacists might be on the subject, they must all admit it was a far-reaching measure, and one which, with amendments which might be found necessary when it came to be worked, was fraught with great advantages to the community. As far as pharmacy was concerned, for the first time in history it was admitted that it was desirable in the interests of the public that dispensing should be separated from prescribing, and this recognition of an "ideal" might have considerable effect as time went on. He admitted that it was not always practicable to work out an "ideal," and that there were many difficulties in the way, and no one would be rash enough to suggest an entire cessation of dispensing by the medical profession or legislation to give such effect. Speaking of the "patent medicine" question Sir Edward Evans said that he could say without fear of contradiction on the part of pharmacists that what was disliked was the flooding of the market with certain nostrums which, from the wording of the advertisements, were supposed to be panaceas for all the ills that flesh is heir to, and, therefore, could only be designated "quack medicines," and it was to this class, he thought, that the Select Committee should give its attention.

Papers Read in the Science Section.

The reading of papers in the science section was begun at the cessation of the presidential address and continued on the following day. There were over 20 papers, many of which dealt with topics of purely pharmaceutical interest. Several of the papers, however, were of some importance to medical practitioners.

Dr. ALEXANDER GOODALL, in a communication on "The Potency and Keeping Properties of some Galenicals as Determined by Physiological Tests," said there was no doubt that the pharmacological testing of certain drugs was a necessity, and he maintained that the prescribing and dispensing of a tincture of digitalis, strophanthus, or squill which had not been so tested was unjustifiable. As a result of extensive investigations, Dr. Goodall showed that 11 out of 23 samples of tincture of digitalis made by manufacturing chemists of repute showed a departure from the normal potency ranging from 4 minims to 25 minims as the equivalent of 15 minims of a tincture of normal strength. Four out of 21 samples of tincture of strophanthus showed a deviation from the average potency ranging from 3 minims to 30 minims as the equivalent of 15 minims of normal strength. Six out of 14 samples of tincture of strophanthus, 1885, showed a departure from average potency varying from 3 minims to 30 minims as the equivalent of 10 minims of tincture of normal strength. Five out of 10 samples of tincture of squill showed a departure from average potency, all in the direction of increased strength. As regards keeping properties, it would appear that tincture of digitalis is not reliable after one year; tincture of strophanthus appears to retain full activity for at least three years; tincture of strophanthus, 1885, and tincture of squill may deteriorate after two years.

Mr. N. H. MARTIN, in a note on the Iodine Content of Thyroid Gland, stated the results of a series of determinations of iodine content of thyroid gland covering different periods of a year. The figures which he submitted covered a total number of over 6500 lobes, each estimation being made on the bulked products of some hundreds. No limitation figures for size of lobes are given in the B.P., but "hypertrophied or otherwise abnormal" glands are directed to be rejected, though it is difficult to see how the average pharmacist can be expected to discriminate. Sheep's thyroids varied greatly in size, but anything between 1 inch and 2 inches in length might be said to be the usual. Frequently glands were met with which greatly exceed these proportions, though apparently of healthy enough tissue. It was noteworthy that whilst the large lobes contained much more iodine than the usual, it was not proportionate to their increased weight, and the percentage of iodine in the dried substance was reduced. As far as there is any indication of seasonal variation in iodine content in the table of monthly results, the author's figures are quite opposed to the statement of Koch that there is three times the amount of iodine in thyroideum siccum prepared during the winter months than in that prepared in June and July—the highest figures for the past year being those given in these two months. There is a considerable range in the iodine percentage—viz., 0·3 to 0·4 per cent., but there was nothing to indicate that so low a standard as that suggested by Mr. R. R. Bennett, at last year's conference—namely, 0·15 per cent.—should be adopted.[1]

Dr. GORDON SHARP and Mr. F. W. BRANSON, F.I.C., contributed some further notes on the Standardisation of Digitalis. The object of the authors' work was primarily to ascertain if a tincture made with 90 per cent. alcohol remained active for a longer time than the ordinary pharmacopœial preparation. Another point kept in view for remark was the relative activity of the petioles. Four months after being made all the tinctures were examined physiologically and came up to the standard, although on the whole the stronger alcohol preparations were not quite so toxic as the others. In the course of examination one of the tinctures did not come up to the standard, and it was surmised that it must be that prepared from the petioles. It was set aside and examined quantitatively, and it was discovered that a double dose needed to be injected to stop the heart. This showed that the petioles or leaf stalks only possessed half the capacity of the leaves and petioles taken together, and the maker who cuts off petioles would produce a more potent preparation than he who includes both in his tincture. The authors again examined the activity of the tincture (on frogs) at the end of 20 months, when it was found that out of nine B.P., or 60 per cent., tinctures, seven were potent; out of nine, 90 per cent. tinctures, only four came up to standard.

[1] THE LANCET, July 29th, 1911, p. 319.

A third examination was carried out at the end of two years and four months. All the B.P., or 60 per cent., tinctures found to be up to standard at the second examination were again tested, with the result that only one was found to answer the test. Of the 90 per cent. tinctures, only one was found to answer the test.

Mr. J. HAYCOCK, F.C.S., from results obtained in the examination of concentrated tinctures, expressed the opinion that the amount of care was not exercised in the selection of the drug and in the preparation of the finished product that was necessary. With regard to many of the concentrated tinctures on the market, it would, in his opinion, be foolish to say that when diluted with their respective alcohols they represented faithfully the tinctures of the British Pharmacopœia. He suggested another process for the manufacture of concentrated tinctures.

A paper on the Formaldehyde Solutions and Tablets of Commerce was contributed by Mr. C. H. HAMPSHIRE, B.Sc., and Mr. O. FURNIVAL. The authors proved that 11 samples of solution examined contained from 35·38 to 37·33 per cent. by weight of formaldehyde. The 18 samples of formaldehyde tablets contained from 0·029 grain to 0·155 grain.

Mr. J. H. E. EVANS communicated some Suggestions for More Extended Cultivation of Drugs. He said that while in other countries much was being done by Government departments to foster the cultivation of drugs, little assistance is given in England, and any advancement which had been made was entirely the result of private enterprise. He showed that our present sources of supply of crude vegetable drugs were in quantity and in quality restricted in area, and thus dependent upon forces which cannot be controlled, such as (*a*) weather, (*b*) time and method of collection, (*c*) labour available, and (*d*) methods of preparing for market which, if careless, lead to sophistication. He showed that since manufacturers are insisting on getting raw materials of a reasonable standard, the collector has an object in collecting his material at the proper time and with proper care. The following are two examples out of many where this improvement has been particularly noticed. Belladonna root can now be obtained in satisfactory quantity containing 0·5 per cent. alkaloids and over. Some years ago it was difficult to get it half this strength. Jalap root used to assay 5 per cent. to 6 per cent. resin, and it was common talk that the B.P. standard was too high. Now there is no difficulty in obtaining the root well over the B.P. limit. The author showed that the influence of the natural causes mentioned might often be controlled by systematic cultivation, but that such cultivation must be scientific and organised. As our empire embraces every variety of climate and situation, it was probable that the majority of useful substances in our materia medica could be produced within its limits.

The subjects and authors of other papers were as follows: "The Preparation of Bacterial Vaccines," by Dr. Ian Struthers Stewart; "Commercial Esters Used in Perfumery and for Flavouring Purposes," by J. C. Umney, F.C.S., and C. T. Bennett, B.Sc., F.I.C.; "A Glucosoidal Constituent of Ipecacuanha," by H. Finnemore, B.Sc., F.I.C., and Dorothy M. Braithwaite; "The Measurement of Relative Tryptic Activity," by A. R. Smith, B.Sc., F.I.C.; "Further Data in Regard to Asafetida" and "A Note on the Oils of Ammoniacum, Galbanum, and Elemi," by E. F. Harrison, B.Sc., F.I.C., and P. A. W. Selfe, B.Sc.; "The Determination of Lead in Chemicals," by G. D. Elsdon, B.Sc., A.I.C.; "The Test for Brucine in Strychnine," by D. B. Dott, F.I.C.; "An Oil from an East Indian Bark," by E. W. Mann, B.Sc.; "The Solubility of Ether in Normal Saline Solution," by R. R. Bennett, B.Sc., F.I.C.; "Unrecorded Microscopical Characters of Bael Fruit," by J. C. Shenstone, F.L.S.; "The Evaluation of Potassa Sulphurata, B.P.," by David Lloyd Howard and J. P. B. Harrison, F.I.C.; "Note on the Determination of Nitrates in Bismuthi Carbonas, B.P.," by Walter R. Pratt, A.I.C.; "The Suitability of Commercial Proteins for Pharmaceutical Use," by F. W. Crossley Holland, F.C.S.; "Note on Calcium Lactate," by Charles A. Hill, B.Sc. Lond., F.I.C., and T. T. Cocking; "Notes on Commercial Formates and other Compounds," by Thomas Tyrer, F.I.C., and F. C. Gosling; "Observations on the Chemical Detection of Blood, Especially in Blood Stains," by Professor Edward Schär, M.D. (Strassburg).

ROYAL MEDICAL BENEVOLENT FUND.

AT the July meeting 24 cases were considered and grants amounting to £191 made to 21 of the applicants. Appended are particulars of the cases relieved:—

Widow, aged 49, of L.R.C.P., L.R.C.S. Edin. No income. Two sons, but at present only able to give very slight assistance. Health prevents any attempt at self-support. Relieved nine times, £89. Voted £10.

Widow, aged 47, of M.R.C.S., L.R.C.P. Quite unprovided for at recent death of husband, and proposes to try to establish a boarding house at a seaside resort. Two children, aged 17½ and 8. Voted £10.

Widow, aged 45, of L.S.A. No income. Lost her husband after a short illness a few weeks ago and is without any means; hopes to support herself by taking paying guests. Voted £10.

Daughter, aged 58, of late M.D. Glasg. Lost her income through the failure of a bank and is now dependent upon two or three quite small pensions from charitable societies. Has been blind for several years, and has recently been disabled, probably permanently, by a severe fall. Voted £2, and case to be reconsidered at the next meeting.

Wife, aged 61, of M.B. Glasg. Since husband's removal to an asylum five years ago has been helped by relations, who are now obliged to reduce their allowance. Voted £6.

Widow, aged 55, of M.R.C.S., L.R.C.P. Has a house, but is unable to either sell or let it, and her consequent difficulties have been increased by the long and serious illness of her daughter, whose earnings should otherwise be sufficient for the comfortable maintenance of both. Voted £10.

L.R.C.P., L.R.C.S. Edin., aged 58. Has practised for nearly 30 years in a Lancashire town, but is now completely disabled by paralysis, and would be destitute but for his wife's income of £1 a week. Voted £18.

Daughter, aged 55, of late L.R.C.P. Edin. No income; unable to earn a living on account of permanent ill-health, and dependent on two younger sisters who have to support themselves. Relieved seven times, £66. Voted £10.

Daughter, aged 55, of late M.R.C.S. No income; receives a home in return for slight services, but is in bad health and consequently has many unavoidable expenses. Relieved four times, £20. Voted £5.

Widow, aged 76, of M.D. Glasg. Lets lodgings, but finds increasing difficulty in maintaining herself, and children are unable to help. Relieved eight times, £41. Voted £10.

Daughter, aged 67, of late L.F.P.S. Glasg. Supplements a pension of £10 a year by letting lodgings, but is in poor health. Relieved once, £5. Voted £5.

Widow, aged 62, of M.D. St. Andrews. No income, and has supported herself since husband's death by letting lodgings, but finds her receipts decreasing and is in bad health. Relieved eight times, £96. Voted £12.

Daughter, aged 69, of late M.R.C.S. Maintained herself by teaching for 43 years, but gave up five years ago on account of failing eyesight, and is now dependent on this Fund and the help of friends. Relieved four times, £48. Voted £12.

Daughter, aged 31, of late M.D. Trin. Coll. Dub. No income, and being a chronic invalid is dependent on her mother, whose only provision is a few shillings a week. Relieved seven times, £50. Voted £10.

Daughter, aged 65, of late M.R.C.S. Is mentally feeble and dependent on a brother who can ill afford to help. Relieved six times, £72. Voted £12.

Daughter, aged 55, of late L.R.C.P. Only income a pension of £21 a year from a charitable society, and is not in good health. Relieved four times, £20. Voted £3.

Widow, aged 55, of L.R.C.P., L.R.C.S. Edin. Quite unprovided for at husband's death two years ago, and is endeavouring to establish a small boarding house. No children. Voted £5.

Daughter, aged 65, of late M.R.C.S. No income; receives a home in return for services. Relieved ten times, £144. Voted £12.

Widow, aged 63, of L.R.C.P. No income; children only able to give slight help. Relieved twice, £24 Voted £12.

Widow, aged 71, of M.R.C.S. Only income about 10*s.* a week, and has to maintain a daughter who is completely incapacitated by arthritis. Relieved twice, £22. Voted £12.

Widow, aged 76, of M.D. Glasg. Has a small income which is sufficient under ordinary circumstances, but has incurred many expenses during the last 18 months through the illness and death of a son. Voted £5.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeon: A. S. G. Bell to the *Cornwallis*, on recommissioning. Staff-Surgeon: C. J. O'Connell to the *Cornwallis*, on recommissioning. Surgeons: J. Barrett to the Royal Marine Division, Plymouth; and C. H. Symons to the *Duncan*.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Captains to be Majors (dated July 29th, 1912):—Henry A. Bransbury and Alfred J. Hull.

The undermentioned Lieutenants to be Captains (dated July 30th, 1912):—Harry S. Ranken, John A. Manifold, Samuel S. Dykes, William H. O'Riordan, Charles T. V. Benson, William P. MacArthur, Robert C. Priest, Percy S. Tomlinson, Francis W. M. Cunningham, Eustace M. Parsons-Smith, Alexander D. Stirling, George P. Taylor Robert S.

Paris, Alfred W. Bevis, Ernest C. Lambkin, Oswald W. McSheehy, Maurice J. Williamson, Charles L. Franklin, Michael White, James J. D. Roche, Herbert F. Joynt, Alexander S. M. Winder, Harry R. Edwards, James R. Yourell, Philip G. M. Elvery, John J. H. Beckton, William B. Rennie, Rupert H. Nolan, and William Mathieson.

Lieutenant Edward B. Allnutt, from the seconded list, is restored to the establishment (dated July 1st, 1912).

Colonel H. O. Trevor, assistant director of Medical Services, has taken up duty on the Headquarters Staff of the Belfast District, in succession to Lieutenant-Colonel R. R. H. Moore, senior medical officer, North Irish Coast Defences. Colonel W. G. Birrell, assistant director of medical services in the Dover District, has been selected for appointment as Assistant Director of Medical Services to the Fourth Division at the ensuing manœuvres.

Lieutenant-Colonel J. Donaldson has been transferred from the command of the Military Hospital at Campbellpore to Kuldana Cantonment and appointed Senior Medical Officer. Lieutenant-Colonel J. W. Bullen has been transferred from the command of the Military Hospital at Maymyo, Burma, to the Seventh (Meerut) Division. Lieutenant-Colonel W. B. Thomson has taken over Medical Charge of the troops and families of the Royal Horse Artillery Batteries at Northampton. Lieutenant-Colonel C. H. Hale, lately commanding the Military Hospital at Kamptee, has been transferred to the Burma Division and appointed to command the Military Hospital at Maymyo.

Major M. H. Babington, Company Officer No. 30 Company, Royal Army Medical Corps, has arrived home on leave of absence from Malta. Major M. H. G. Fell, sanitary specialist at Cairo, has been transferred to the London District. Major H. W. H. O'Reilly, at present holding medical charge of the Detention Barracks at Colchester, has been selected to hold charge of the 11th Infantry Brigade Reception Hospital at the ensuing manœuvres. Major E. P. Connolly has been transferred from Rawal Pindi Cantonment to the Military Hospital at Gharial. Major J. G. Churton has taken up duty as Specialist in Operative Surgery to the 9th (Secunderabad) Division of the Southern Army in India. Major L. Way has been transferred from the Station Hospital at Bareilly to Chakrata. Major S. O. Hall, at present holding charge of the Military Families Hospital at Fermoy, has been placed under orders for service abroad during the coming trooping season.

Captain W. S. Crosthwait has been transferred from the Military Hospital at Clonmel to Fermoy for general duty. Captain D. de C. O'Grady has been appointed Specialist in Dermatology and Venereal Diseases to the 2nd (Rawal Pindi) Division of the Northern Army in India. Captain L. A. A. Andrews, on completion of a tour of service at Mauritius, has been appointed to the Irish Command for duty in the Belfast District. Captain A. T. Frost, Specialist in Dermatology and Venereal Diseases to the Dublin District, has been placed under orders for service abroad during the coming trooping season. Captain T. J. Wright, at present stationed at Bordon, has been selected for appointment as Assistant Instructor at the Royal Army Medical Corps School of Instruction, Aldershot Command, in succession to Major G. G. Delap, D.S.O., whose tenure of the appointment has expired Captain G. H. Richard, on completion of a course of study at the Royal Army Medical College, London, has been appointed to the Medical Charge of the 20th Hussars at Colchester. Captain M. W. Falkner, in charge of the Military Hospital at Watford, Bermuda, has been appointed Specialist in Operative Surgery. Captain G. G. Tabuteau, on return home for duty from India, has been appointed to the Dublin District. Captain W. J. E. Bell has been transferred from the Military Hospital at Cosham to Gosport for duty. Captain H. J. Crossley has taken up duty in medical charge at Whitley Bay Camp. Captain H. C. Sidgwick has been transferred from the Royal Herbert Hospital at Woolwich to the Military Hospital at Kingston-on-Thames.

Lieutenant F. S. Tamplin has been appointed to Larkhill Camp, Salisbury Plain. Lieutenant W. H. O'Riordan has been transferred from Rawal Pindi Cantonment to the Military Hospital at Barian. Lieutenant D. Reynolds and Lieutenant C. D. K. Seaver, stationed at Limerick and Fethard respectively, have been placed under orders for service abroad during the coming trooping season. Lieutenant C. H. Stringer has taken up duty at the Royal Victoria Hospital, Netley. Lieutenant G. H. Dive has embarked for a tour of service in North China. Lieutenant E. C. Lambkin has joined the Military Hospital at Hong-Kong. Lieutenant W. A. Frost has been transferred from Alderney to Devonport.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel D. T. Lane has arrived home on leave of absence from India. Lieutenant-Colonel P. Hehir has taken up duty on promotion as Principal Medical Officer in Burma. Lieutenant-Colonel C. Duer, Civil Surgeon at Simla West, has been granted six months' leave of absence home from India. Lieutenant-Colonel A. W. Dawson, medical officer of the 1st Sappers and Miners, has been selected to officiate as Principal Medical Officer of the Derajat and Bannu Brigade.

Major G. E. Stewart has been appointed to officiate as Deputy Sanitary Commissioner of the Central Registration District, Bombay Presidency, in addition to his duties as Medical Superintendent of Mahabaleshwar. Major E. S. Peck has been granted 18 months' leave of absence home from India on medical certificate. Major W. H. Ogilvie, medical officer of the 40th Regiment of Pathans, has been selected for appointment as Officiating Special Sanitary Officer at Delhi. Major C. C. Murison has been appointed to officiate as Deputy Sanitary Commissioner, Gujerat Registration District, in addition to his duties as Medical Superintendent of Matheran. Major J. Standage, agency surgeon, has been granted 18 months' leave of absence home from India. Major S. R. Godkin has arrived home on leave of absence from India. Major G. T. Birdwood, civil surgeon at Agra, has been transferred to Lucknow as Civil Surgeon. The services of Major J. W. D. Megaw have been placed at the disposal of the Government of Bihar and Orissa. Major C. Milne has been transferred from Jhansi to Mussooree and appointed Civil Surgeon.

Captain A. Cameron has taken up duty at Bareilly as Officiating Civil Surgeon. The services of Captain N. M. Wilson have been placed at the disposal of the Punjab Government to act as Medical Adviser to the Patiala State. Captain J. Morrison has been placed on special duty at Poona. Captain F. A. Baker has been granted two months' privilege leave of absence. The services of Captain H. C. Buckley, plague medical officer in the Punjab, have been placed at the disposal of the Government of India, Department of Education. On return from leave of absence Captain A. K. Lauddie has been posted to Ludhiana as Civil Surgeon in succession to Captain J. G. G. Swan. Captain C. L. Dunn, officiating sanitary commissioner, Second Circle, Punjab, has been deputed to Amritsar in connexion with the suppression of malarial fevers.

TERRITORIAL FORCE.

Royal Army Medical Corps.

1st East Anglian Field Ambulance, Royal Army Medical Corps: Lieutenant Alister C. Young to be Captain (dated July 23rd, 1912).

2nd East Anglian Field Ambulance, Royal Army Medical Corps: Lieutenant Dudley W. Boswell to be Captain (dated July 2nd, 1912).

3rd East Anglian Field Ambulance, Royal Army Medical Corps: Lieutenant James Turtle to be Captain (dated July 27th, 1912).

2nd South Midland Field Ambulance, Royal Army Medical Corps: Lieutenant-Colonel Charles T. Griffiths resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated Feb. 15th, 1911).

2nd Welsh Field Ambulance, Royal Army Medical Corps: Major Edward Tenison Collins, from the List of Officers attached to Units other than Medical Units, to be Major (dated August 3rd, 1912).

2nd South-Western Mounted Brigade Field Ambulance, Royal Army Medical Corps: Lieutenant-Colonel Augustus W. Dalby, on completion of his period of service in command, is retired, and is granted permission to retain his rank and to wear the prescribed uniform (dated August 7th, 1912). Major Arthur Cary to be Lieutenant-Colonel (dated August 7th, 1912).

Attached to Units other than Medical Units.—Captain Hugh N. A. Taylor to be Major (dated May 6th, 1912). Lieutenant Thomas H. C. Derham to be Captain (dated July 1st, 1912). Lieutenant Edward N. Threlfall to be Captain (dated July 1st, 1912). Captain Joshua L. Kerr resigns his commission (dated August 3rd, 1912).

For Attachment to Units other than Medical Units.—Isaac Barnett Bernstein to be Lieutenant (dated May 14th, 1912). James Arthur to be Lieutenant (dated May 17th, 1912). Major Evelyn John Robert Evatt, from the 2nd Welsh Field Ambulance, Royal Army Medical Corps, to be Major (dated August 3rd, 1912).

TERRITORIAL FORCE RESERVE

Royal Army Medical Corps.

Captain John Orton, from the List of Officers attached to Units other than Medical Units, to be Captain (dated August 3rd, 1912).

UNITED SERVICES MEDICAL SOCIETY.

Part VI. of the Transactions of the United Services Medical Society (March to June, 1912), in addition to the conclusion of the interesting lecture by Lieutenant-Colonel C. H. Burtchaell, R.A.M.C., on "Medical Service with Lord Methuen's Force during the Advance on Kimberley, 1899," contains some papers of practical utility to Territorial officers. Major H. E. M. Douglas, V.C., D.S.O., R.A.M.C., draws attention to "The Special Weaknesses, from a Medical Aspect, of Volunteer Troops," and deals with the subjects of enteric fever, diarrhœa and other bowel complaints, heart strain, and small-pox. The relative conditions of these maladies in the two branches of the service, broadly stated, are due to the differences in the peace environment of Regulars and Territorials and to the effect of that environment on their physical and physiological condition. This is admitted by Major Douglas, and in the discussion which followed the paper Major W. S. Harrison, R.A.M.C., makes the suggestion that a good many of the bowel troubles of camp life could be reduced if men were practised more in the art of living in camp. Territorial associations, he says, might establish summer camps in suitable places, where officers and men could go for week-ends as they would to an hotel. Here men would learn how to live in camp, how to keep dry and warm, how to cook, and how to keep a camp clean. Major F. E. Fremantle, R.A.M.C. (T.), in "The Sanitary Service (Territorial Force)," makes suggestions for bringing the Territorial Service into touch with civil sanitary administration. The scheme would involve the goodwill and some expenditure of time and trouble on the part of district medical officers of health, but Major Fremantle points out that the basis of national defence by a citizen army must ever be that each should contribute according to his ability. Major Caldwell Smith, R.A.M.C.(T.), discusses the "Duties of Sanitary Companies, Territorial Forces," and there is an account of a "Demonstration of a Portable Operating Table for Use in the Field and Elsewhere," by Lieutenant-Colonel J. F. Donegan, R.A.M.C.

WHAT THE INDIAN MEDICAL SERVICE HAS DONE FOR INDIA.

The question "What has the Indian Medical Service done for India?" was raised by a person in high authority during the Royal visit to Calcutta, and at the suggestion of Sir Havelock Charles, the King's physician, the *Indian Medical Gazette* provides an answer in its June number. The writer of the article shows that for a very long period members of the Service have taken the lead not only in the investigation of tropical diseases but in the practice of every branch of medical and general science. Many of the names mentioned are truly great in medical and scientific history. The military duties of the Service are hardly mentioned, for, as a matter of course, every army that has fought in India or beyond its borders has had invaluable assistance from Indian Medical Service doctors, whilst two members of the Service have won the Victoria Cross. The improvement in the general health of the non-military Europeans and natives in India, so remarkable in recent years, has been almost entirely due to the sanitary officers of the Service. Besides purely medical work, numerous members of the Service have fulfilled all sorts of non-medical appointments, always with distinction. The article is pleasant reading to all members of the medical profession, and thoroughly establishes the claim of the Indian Medical Service to the gratitude of India.

EMBARKATION MEDICAL OFFICERS.

The Government of India has sanctioned the grant of an additional allowance of Rs.50 per mensem to the two R.A.M.C. officers detailed annually as embarkation medical officers at Bombay and Karachi respectively, for the period during which they are so employed.

MALARIA IN DELHI.

Captain Hodgson, I.M.S., with a small staff, has been deputed to conduct a malarial survey of Delhi and its neighbourhood for the information of the Government of India.

COLONIAL MEDICAL SERVICES.

West African Medical Staff.—Dr. A. J. Smith, medical officer, Gold Coast, has resigned. Mr. W. M. Woods, medical officer, Southern Nigeria, has retired. Dr. A. E. Horn has been appointed Personal Assistant to the Principal Medical Officer of Southern Nigeria, Mr. T. F. G. Meyer has been selected for temporary special service at the Colonial Office, and Mr. D. J. F. O'Donoghue has been selected for appointment as a Medical Officer, Gold Coast.

Other Colonies and Protectorates.—Dr. W. B. Cunningham has been selected for appointment as a Supernumerary Medical Officer for the Leeward Islands, Dr. E. E. Field has been selected for appointment as an Assistant Medical Officer in British Guiana, Dr. R. D. Fitzgerald has been selected for appointment as a Medical Officer in the Straits Settlements, and Mr. A. L. George has been appointed a Supernumerary Medical Officer in Trinidad.

Correspondence.

"Audi alteram partem."

EUGENICS AND MILITARISM

To the Editor of THE LANCET.

SIR,—May I be permitted to draw attention to some fallacies in the paper on Eugenics and Militarism read before the Eugenic Congress. In his paper on Eugenics and Militarism Professor Kellogg brought forward certain statistics purporting to show the dysgenic effects of war. Now war is a state admittedly entailing a severe strain on the community waging it, and it is only to be expected that statistics of the succeeding period should show signs of this strain on the community. In a healthy man after a day's work waste products of metabolism are found in the muscles and complete relaxation and sleep are necessary for recuperation. Are we to conclude from this that a day's work is dysgenic? Professor Kellogg's conclusion as to the effect of war appears precisely similar.

Even the statistics brought forward by Professor Kellogg to illustrate this point demand a closer examination. Part of his case is founded on the statistics from France of the period subsequent to the Napoleonic wars, but in these statistics no attempt is made to allow for the effect of the revolution which also preceded this period. In the later portion of the paper he attempts to show that militarism in peace time is dysgenic, particularly by means of statistics purporting to compare the incidence of venereal diseases in the army, among candidates for enlistment, and the general population. Here the fallacy of his statistics is immediately obvious, since self selection prevents men with definite indication of venereal disease from attempting to enlist.

The only statistics for the British army that could clear up his point would be a comparison between men (*a*) in the army and (*b*) not in the army, who have the following conditions in common—i.e., (*a*) a similar age distribution; (*b*) living under similar climatic conditions; (*c*) with similar previous environment, both mental and physical; (*d*) enjoying suitable board and lodging; and (*e*) provided with a modicum of spare cash.

Pending such a comparison, no conclusion that militarism is dysgenic from this point of view is justifiable on the evidence of Professor Kellogg's statistics, particularly when it is remembered that in the British Army venereal diseases are certainly reported, while among the general English population they are not notifiable. In Germany an approximation to this comparison is possible, as shown by Colonel Melville. Here the annual admission of recruits—i.e., representatives of the non-military population—is signalised

by an enormous temporary increase in the proportion of men in the army affected by these diseases, followed by a marked drop a month later, by which time the men have become affected by discipline or the spirit of militarism.

This comparison is by no means perfect, as sufficient allowance for the age-incidence of these diseases is not made, but the evidence, such as it is, tends to emphasise the importance of avoiding the fallacies of Professor Kellogg's statistics.

I am, Sir, yours faithfully

G. STURROCK,
Captain, R.A.

July 30th, 1912.

FLEMING'S (HECHT'S) MODIFICATION AND THE WASSERMANN TEST.

To the Editor of THE LANCET.

SIR,—Both on practical and theoretical grounds I consider that the balance of evidence is strongly in favour of the original technique or those modifications of the original method in which all the essentials of Wassermann's technique are preserved. I have discussed my reasons for this preference in a brochure on the Clinical Pathology of Syphilis and Parasyphilis, of which the following is a brief summary:—

Theoretical.—1. All the factors are constant except the test serum. 2. The results obtained in any one series are strictly comparable. 3. Quantitative estimations of the complement-fixing substance can be made and are also comparable.

Practical.—1. The test can be employed with cerebro-spinal fluid which contains no complement or hæmolytic antibody. 2. *All* sera can be tested without recourse to another technique in a percentage of cases. 3. The test can be applied to sera that have been drawn off for a week or more.

Even in Stern's technique, which approaches the original more nearly than does Hecht's, in that the test serum is used only for complement and complement-fixing substance, and not for hæmolytic antibody, the variability in amount of complement is admitted by the originator of this modification, who confesses that her method is not reliable in wasting diseases.

In Hecht's technique 10 per cent. of sera contain no, or but little, hæmolytic antibody, and therefore the test must be repeated, using the original method. As here the test serum is employed for both complement and hæmolytic antibody as well as for complement-fixing substance, it is impossible to say to which of these variants a partial inhibition of hæmolysis may be due. A quantitative test can only be made by varying the amount of antigen, and many observers consider that this is the least satisfactory way of arriving at a quantitative estimation of the complement-fixing power of the serum tested.

I am, Sir, yours faithfully,

HUGH WANSEY BAYLY.

Bacteriological Department, St. George's Hospital, August 1st, 1912.

ŒDEMA IN PNEUMONIA.

To the Editor of THE LANCET.

SIR,—Reading Dr. Percy Kidd's remarks on this subject in THE LANCET of June 22nd recalls to my mind a case I was once called to treat. It was that of a man suffering from lobar pneumonia, and he seemed to be moribund and was unconscious. I noticed considerable œdema of his feet and ankles, and this led me to examine the præcordial region with care. I diagnosed pericarditis and operated at once. No anæsthetic was required. I removed the cartilage of the fifth rib, and clearing the interspaces above and below incised the pericardium. There was a large amount of creamy pus, and the surface of the heart was covered with fibrinous deposit. The man recovered for the time being and the œdema of the legs soon disappeared. It was evidently caused by the embarrassed action of the heart. He lived 17 days and died from secondary infection of the pericardium.

This case shows that the possibility of pneumonic pericarditis must be borne in mind if œdema is seen in a case of pneumonia.

I am, Sir, yours faithfully,

W. E. MCKECHNIE,
Major, I.M.S.

Etawah, India, July 13th, 1912.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Cleansing of a City.

THE annual Conference of the Institute of Cleansing Superintendents was held in the town hall, Manchester, in the third week in July. Mr. A. Jennison, in a lecture on the "The Cleansing of a Great City," said that for this purpose Manchester expended £200,000 per annum, and of this sum £123,000 was paid in wages. About 80,000 tons of street-sweepings and over 200,000 tons of domestic refuse were dealt with each year. The value of this work to the public health was indicated by a drop in the city death-rate from 26 per 1000 in 1891 to 17·1 in 1911. There were 540 miles of roadway in the city, and the surface swept each year reached the stupendous figure of 709 million square yards.

Bovine Tuberculosis.

At the annual meeting of the Veterinary Association in Manchester last week Professor S. Delépine, in an address on "Tuberculosis in Cattle," said that there was probably no disease to which agriculturists had unconsciously paid a heavier tax than bovine tuberculosis, an infectious and non-hereditary disease, which seldom affected young calves, but whose incidence increased with age. The total number of tuberculous cattle in Great Britain might be estimated at not less than 1,131,570. The bacilli of tuberculous cattle, especially old cattle, had a higher degree of virulence for cattle and other animals than human tubercle bacilli. The milk of cows with tuberculous udders almost invariably contained highly infectious bacilli. As in man, the chief channels of infection were the air passages and alimentary canal. Calves might easily be infected by means of tuberculous milk, and older cattle were often affected by fodder contamination. Cattle with intestinal tuberculosis might infect pastures to a dangerous extent. The dominant factor in the spread of bovine tuberculosis was the tuberculous animal, and more particularly the animal in which tuberculous lesions had reached the ulcerative stage. Completely to protect healthy cattle against tuberculous infection it was necessary entirely to prevent their coming in contact with tuberculous animals or products. In renewing stock all new animals, preferably young ones, should be tested and added to non-reacting stock only after having twice shown a negative tuberculin reaction. The whole of the sound herd should be tested twice a year so long as a sufficient series of successive tests had not proved the entire absence of tuberculous animals. It was easy to control tuberculosis in one herd. Professor Ainsworth Wilson, of Edinburgh, asserted that 40 per cent. of the dairy animals of this country were affected with tuberculosis. The breed had little to do with it, but age and the number of animals in a shed had much.

Lancashire County Council and Cost of Dispensaries and Sanatoriums under the Insurance Act.

The medical officer of health to the Lancashire county council, Mr. E. Sergeant, has prepared a scheme in accordance with the provisions of the Insurance Act. The county is divided into 11 dispensary districts. First come tuberculosis dispensaries, and secondly sanatoriums, hospitals, farm colonies, and open-air schools, in which institutional treatment is given. The dispensary would be a centre for diagnosis and organisation of treatment of tuberculosis in each area. It is suggested that one dispensary or its equivalent staff would be required for every 150,000 or 200,000 of the population in an urban neighbourhood. As to sanatoriums, one bed should be provided per 5000 of the population for curative treatment, and the same proportion would probably be required in the various dispensary areas for observation, treatment, education, and isolation. Each dispensary, with its chief tuberculosis officer, dispenser, and house visitors, would cost at least £1250 annually, or a charge of £13,750 for the 11 areas in the county of Lancashire, exclusive of the expenditure on dispensary establishments (each estimated at £250) and dispensary beds, which at the ratio estimated would be 350 in all, in addition to the 350 beds required for curative treatment in sanatoriums. The Local Government Board considers that the expenditure would not exceed £150 per bed, and the cost of maintenance would vary from 25*s.* to 30*s.* per week per bed. If 700 beds

were required at a cost of 25*s.* per week per patient, the annual cost would be £45,500, which, added to the £13,750 annual cost of the county dispensaries, would represent an annual expenditure of £59,250 for tuberculosis purposes, exclusive of the amount to be paid yearly for interest and sinking fund on structural outlay. This scheme refers to the county council only, and does not affect municipalities which have to make their own schemes.

Degree Day at Manchester University.

On July 27th the degree of M.D. was conferred on nine candidates, of whom three were women. Of the women graduates, one obtained the gold medal for her thesis and two received commendation. One graduate received the degree of Master of Surgery and one candidate that of Bachelor of Dental Surgery. The degrees of Bachelor of Medicine and Bachelor of Surgery were conferred on 15 candidates. The total number of students in the medical faculty of the University during the session 1911–12 was 334 (including 28 women students). The Vice-Chancellor in his address to the graduates referred to the loss the University had sustained through the death of Professor J. Dixon Mann, who for 25 years had lectured on medical jurisprudence. Professor Mann left £900 to the University for research, and this, with other sums, formed the nucleus of a fund for the investigation of cancer. The University now granted a diploma in psychiatry. Mr. T. Tanner and Mr. G. O. Whittaker had resigned their appointments as lecturers respectively in dental mechanics and operative dental surgery. By an arrangement between the University and the Dental Hospital part of the increased grants from the Board of Education for professional and technical education would be applied to the clinical instruction in the Dental Hospital.

Home for Manchester and Salford Crippled Children.

On Saturday last the foundation-stone was laid of a new home for crippled children to be erected at Rose Hill, Marple, by the Manchester and Salford Crippled Children's Help Society. The society has on its books no fewer than 1078 cases of crippled children, chiefly of the poorer classes, many of whom could be relieved or absolutely cured if the means were available, besides the many others not yet on the books. Mr. J. Howson Ray said that the large hospitals could not give children with chronic ailments the long stay in hospital they should have. For children crippled as a result of tuberculosis the best treatment was not by operation but by rest treatment, which the society provided if the necessary monetary support was forthcoming. The cost of the building, which when completed will accommodate 30 children, will be about £3900. Manchester has promised a grant in support of the home, and it is hoped that Salford will do the same.

August 6th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Projected Parochial Epileptic Colony at Maghull.

THE problem of providing properly classified accommodation for the epileptic and feeble-minded persons chargeable to the parish of Liverpool and the West Derby Union has occupied the attention of the two boards for a number of years. After negotiations extending as far back as 1905, the Local Government Board in the autumn of 1910 sanctioned the proposal to provide one institution to accommodate imbeciles, and another for epileptics, chargeable to both unions. The select vestry of the parish of Liverpool thereupon proceeded to provide for epileptics and the West Derby guardians to provide for imbeciles. The select vestry decided to erect their colony on the property belonging to them at Maghull, and on which they had been treating about 60 boys suffering from tuberculous disease. The site has the advantage of being in a district which has now become famous for the successful treatment of epilepsy. The colony system has been adopted in view of the fact that these cases are not sufficiently numerous in each union to justify separate provision for them. But even the colony system can be most efficiently and economically managed by combinations in the localities chiefly affected rather than by a combination of unions extending over one or more counties. The select vestry were furnished with figures at the time, and sufficient encouragement from neighbouring unions was given to justify them in making provision for 300 patients. The architect's plans have now been sanctioned by the Local Government Board. The new buildings will comprise an administrative block, kitchens, clothes and general stores, laundry, boiler-house, engine-house, accumulator-room, and workshops for the use of inmates. When completed the colony is expected to be one of the most satisfactory of its kind in England. The Local Government Board has authorised the expenditure of £32,700, but to this must be added sums for sanitary and engineering work, which will bring up the total to £49,000.

Dr. Hope's Annual Report and the Protective Influence of Vaccination.

Dr. E. W. Hope, medical officer of health, in his annual report recently issued, alludes to the valuable information as to the efficiency of vaccination which the medical inspection of school children has brought to light. He deplores that in some districts there appears to be a growing neglect of vaccination, as evidenced by the fact that the younger children show a less satisfactory vaccination than the older ones. Over the whole city the percentage of unvaccinated boys and girls leaving school was 6·3, but in the new admissions of children to the schools it was 8 per cent., an addition which cannot be regarded without grave apprehension as to the results of exposure to small-pox. In one Poor-law district nearly 14 per cent. of the newly admitted children were unvaccinated. An interesting diagrammatic chart showing the incidence and severity of small-pox among the unvaccinated as contrasted with the vaccinated has been compiled by Dr. W. Hanna. It clearly illustrates the well-known protective effect of vaccination, the unvaccinated having exceedingly few mild cases of small-pox and a terrible death-rate from the malady.

August 6th.

BRISTOL AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Medical Inspection of School Children in Bristol.

THE report for 1911, by Dr. T. A. Green, school medical officer of Bristol, has just been issued. During the year 14,439 children were examined; of these, 13,363 were routine examinations, 850 "special" examinations, and 226 re-examinations. Parents were present in nearly 72 per cent. of cases. Of the children seen at the routine examinations 23·5 per cent. were entirely free from defect. For purposes of convenience the ringworm cases were assembled for inspection in one centre. These have amounted to over 600 during the year, and in view of the long absence from school entailed by the protracted nature of the disease Dr. Green suggests that arrangements ought to be made for X ray treatment. He also expresses the opinion that an open-air school is necessary. In considerably more than half of the cases where parents have been told that their children are in need of medical, ophthalmic, or dental treatment, no action has been taken by them.

Bristol Royal Infirmary.

At the half-yearly meeting of the governors of this institution suitable allusion was made to the recent Royal visit, a full account being placed on the minutes, together with the address presented to Their Majesties. The in-patients during the half-year totalled 2437 and the out-patients 25,001, an increase on the corresponding part of last year of 259 and 1084 respectively. The number of beds occupied averaged 248, out of a total of 270, and the average stay of each patient was 19 days. The total income was £9038 17*s.* 3*d.*, the total ordinary expenditure £9340 19*s.* 5*d.*, and extraordinary expenditure £400; the deficit on the half-year's work being £936 9*s.* 10*d.*, and the total revenue deficit about £6300. No statement was made as to the means by which it is proposed to meet the outlay on the new buildings, which are to be thrown open during September for inspection by the public.

An Interesting Case Under the Workmen's Compensation Act.

At the Bristol County Court on July 22nd, an arbitration case under the Workmen's Compensation Act was heard by Judge Austin. The applicant, a carpenter employed by a

local firm, in the course of his work was injured in July, 1911, by a piece of copper wire which "ran into his right knee," totally incapacitating him from work, and it was impossible to estimate the duration of the period of the incapacity. The insurance company, through whom the respondents had insured their servant, had paid the usual compensation allowance until March, 1912, when, according to applicant's solicitor, "the insurance company seemed to take up the position that as the applicant would not submit to a course of massage treatment, recommended by their medical officer, they declined to continue compensation." The applicant admitted that three medical men who had examined him for the insurance company recommended it, but "as his own doctor was averse to that treatment he declined to undergo it." Two medical men, giving evidence for applicant, stated that, in their opinion, massage would have no beneficial effect, while the two medical witnesses for the company thought that it would. His honour could not say that under the circumstances the applicant was unreasonable in refusing massage, and he therefore granted an award for the applicant, with costs.

The Sanitary Inspectors' Association.

A well-attended meeting of the South-Western centre of the Sanitary Inspectors' Association was held recently in Paignton. Mr. Crathorn, of Paignton, read a paper on the Housing and Town Planning Act, 1909. Mr. G. Adkins, medical officer of health of Devon, took part in the discussion. Mr. C. W. Vickers, medical officer of health of Paignton, remarked that with the majority of sanitary inspectors insecurity of tenure was a great difficulty, and added that "when they had people living in places that were worse than pigsties money from the rates might be used in an infinitely worse manner than in subsidising small country villages to build houses for the labouring classes." Mr. G. Body, of Torquay, read a paper on the Inspection of Meat in Private Slaughter-houses, in which he urged the passing of an Act stipulating the time of slaughter, the abolition of private slaughter-houses, and the appointment of whole-time qualified meat inspectors.

Cornwall in June.

Dr. R. Burnet, medical officer of health of Cornwall, in his report for June, states that it was "a very wet, stormy, cold, and sunless month." Never before had such unpropitious weather been recorded in June. The rainfall was 2·26 inches above the five years' average. There were 21 wet days in the month. The death-rate was 11·58 per 1000, against 12·55 per 1000 for June, 1911. The birth-rate was 20 per 1000.

A New Joint Sanitary Appointment in Gloucestershire.

Recently it was decided to form a joint area under the jurisdiction of the Stroud urban and rural district councils and the Nailsworth urban council, and to appoint a medical officer of health for that area at a yearly salary of £515. About 50 applications were received for the appointment, and eventually Dr. Reginald Green, formerly medical officer of health of King's Norton, prior to that district being absorbed in Greater Birmingham, was elected.

Hospital Saturday at Ilfracombe.

The committee of the Hospital Saturday Fund at Ilfracombe has decided to observe August 17th as Hospital Saturday. In 1911 the collections resulted in a sum of £261 being raised for the Tyrrell Cottage Hospital.

August 6th.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Amalgamation of Colliery Districts in Monmouthshire.

ALTHOUGH the colliery villages and townships comprising the Western Valleys of Monmouthshire are practically continuous one with another, they are under the sanitary administration of five different authorities—Nantyglo and Blaina, Abertillery, Mynyddislwyn, Abercarn, and Risca. This divided administration does not make either for efficiency or economy, though with respect to most of the districts joint sewerage schemes and combined water undertakings are being carried out. It must, therefore, be only a question of time for a more complete combination to be effected. The aggregate population of the districts named is over 90,000, and the rateable value £335,000, and preliminary discussions have recently taken place in connexion with a scheme of combination with a view to the formation of a county borough. The experience of the larger districts in the South Wales coalfield, such as Pontypridd, the Rhondda, and Merthyr, compared with that of the numerous small districts in Monmouthshire, tend to show that better government is obtained in one large district. The largest district in the proposed Monmouthshire combination is Abertillery, where there is a population of 35,000, and this is the only one of the five districts in which a whole-time medical officer of health is employed and where the medical inspection of school children is carried out by the district council and not by the county education authority.

Housing in Llanelly.

Llanelly is by far the largest town in the county of Carmarthen, having a population of 32,000 persons, and in the past ten years there has been an increase of about 6000. For some years there has been an increasing demand for houses for the workpeople employed in the tin-plate works, and the urban district council has accordingly decided to erect 24 cottages in two blocks of 12 each. The accommodation is to consist of a large kitchen, scullery with bath, and three bedrooms. The rent is to be 5*s.* 3*d.* weekly. In his last annual report the medical officer of health, Dr. T. E. Francis, sets out very fairly the arguments for and against the erection of houses by a sanitary authority. He considers that economic rents should be charged, that tenants should be selected, those who are dirty or destructive being turned out, and that the council houses should not be erected in one part of the district alone, in order to avoid the creation of a large class of municipal tenants who would only vote at the municipal elections for a candidate who promised reductions in rent, &c. As long ago as 1907 the Llanelly council decided to take advantage of the Small Dwellings Acquisition Act, 1899, a measure which has not been made so much use of as its promoters anticipated. Under this Act the council may make advances not exceeding £300 to occupiers or intending occupiers of houses to enable them to become the owners. During 1911 a sum of £1077 was advanced to seven persons under the provisions of the Act by the Llanelly council, who decided that from the beginning of the present year no valuation or solicitor's mortgage costs should be charged to borrowers, the actual out-of-pocket expenses and loan board charges alone being made. Another enterprise of the Llanelly council is the development of a town-planning scheme on land covering 111 acres. The proposal is to limit the number of houses to 20 per acre and to have not more than 20 houses in one continuous block.

Insanitary Ships at Newport (Mon.).

The medical officer of the Newport (Mon.) port sanitary authority, in his annual report for 1911, recently issued, states that although the Board of Trade had laid down certain minimum requirements in respect to cubic space, sanitary conveniences, &c., new vessels frequently arrived at Newport, contravening even the inadequate requirements of the Board of Trade. In the Merchant Service, the report adds, every ship has its own standard of hygiene. In the opinion of the medical officer there is no question as to the inadequacy and obsoleteness of the health-preserving regulations of the Board of Trade, which department is entrusted with the housing of the sailors. Other maritime nations are waking up in this matter. In particular, Norway and Denmark are ahead of Great Britain in respect of marine hygiene. Marine hygiene is an undeveloped science The Board of Trade officials who are responsible for the construction and supervision of vessels are not required to possess any knowledge of hygiene.

August 6th.

AT a meeting of the Devon education committee, held at Exeter on July 25th, the resignation of Mr. Leonard R. Tosswill, the school medical inspector for the Exeter district, was accepted with regret. Mr. Tosswill has been appointed assistant medical officer to the London County Council.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Men on Insurance Committees.

SOME months ago the Irish Insurance Commissioners invited the Conjoint Committee of the Irish and British Medical Associations to submit names of members of the medical profession willing to act on County and County Borough Insurance Committees. It was stated that if the Conjoint Committee would submit four names for each county and county borough, the Commissioners would in each case appoint two of the four. The Conjoint Committee accepted the invitation, and forwarded four names for each county and county borough, the names having been selected by the local profession. It was generally assumed that in making the nominations of medical members of the Insurance Committees the Commissioners had fulfilled their promise of restricting their choice to the lists submitted by the Conjoint Committee. It has been discovered, however, that in several instances the engagement has not been kept. In the cases of the county Dublin, the South Riding of Tipperary, and the city of Limerick, at any rate, the Commissioners have made independent choice. No explanation has been given of this action. In the case of South Tipperary, the medical men nominated by the Commissioners, on being made aware of the facts, tendered their resignations.

The Peamount Sanatorium.

Last week Mr. Justice Madden inflicted a sentence of six months' imprisonment on two men who had been concerned in the attack on Peamount Sanatorium a few weeks ago. Meantime, the Women's National Health Association is meeting with a more constitutional form of opposition. A writ for an injunction has been filed. The plaintiff is Miss Margaret C. Crinion, of Grainoge, Rathcoole, and the defendants named are the Countess of Aberdeen, the Right Hon. Sir David Harrel, the Right Hon. L. A. Waldron, the Right Hon. M. F. Cox, and Mr. W. M. Murphy. The writ claims "an injunction to restrain the defendants from using certain premises known as the house and lands of Peamount, Newcastle, Barony of Newcastle, and county of Dublin, containing 52a. 3r. 12p., held by the defendants, with other lands, as owners in fee-simple, as trustees under the National Insurance Act, 1911, for the purpose of a hospital or sanatorium for persons subject to an infectious disease of tuberculosis or consumption." Damages are claimed for "injury to the plaintiff as owner of lands in the vicinity of said lands and premises." The plaintiff sues in her personal capacity and also as a ratepayer of the said barony and county.

Public Fear of Tuberculosis.

A new instance of the public dread of tuberculosis is furnished by the proceedings of the Rathdown guardians last week in reference to a proposal of the Wicklow county council to use the Bray dispensary as a tuberculosis dispensary under the provisions of the Insurance Act. The guardians refused permission to use the Bray dispensary or any other premises in their possession for such a purpose. It is just as well that the administration of the sanatorium benefit should not be even indirectly associated with the Poor-law service, but this was not the motive which animated the guardians in their decision.

Health of Belfast.

At a meeting of the city council of Belfast, held on August 1st, it was reported that in the four weeks ended July 13th the total death-rate of Belfast from all causes was 14·4, 0·9 from zymotic diseases, and 4·4 from chest affections. Seventy-seven cases of infectious disease were notified during the month under review, while 35 cases of pulmonary tuberculosis were also reported.

The Tuberculosis Problem in Belfast.

At the monthly meeting of the Belfast city council on August 1st the chairman of the public health committee said the scheme for the prevention, detection, and treatment of tuberculosis had been carefully considered by the committee, and they had hoped to have been able to place before the corporation a complete scheme showing the entire cost and the net charge on the corporation; but they were obliged to adjourn the matter because by the Tuberculosis Prevention Act of 1908 (under which they had authority to carry out the treatment of tuberculosis) it was laid down that all expenses should be defrayed out of the poor-rate. There was nothing in their estimates entitling them to spend a penny in the treatment of tuberculosis. They had therefore approached the Local Government Board to see if there was any way out of the difficulty. So far no reply had come, but they were informed they had no right to anticipate a rate being struck, and, except the Local Government Board showed them the way, they could not take action under the Act before April 1st, 1913. However, that was not of such serious moment, because the ratepayers were spending £18,000 a year on the treatment of tuberculosis. £15,000 of that was administered by the board of guardians and the rest by the city corporation. Thus the matter, the chairman said, was not more urgent than in the past. He hoped the Local Government Board would show them some way out of the difficulty. Of course it can be said, in reply to these remarks of the chairman of the Belfast public health committee, first, that the Belfast public health authorities have made pulmonary tuberculosis compulsorily notifiable, therefore on them rests the onus of providing suitable treatment for any cases reported, and that in addition, under the Insurance Act, sanatorium benefits apply in Ireland; consequently, a large number of those insured will demand sanatorium treatment. The easiest way out of the difficulty would be for the health authorities to take over from the board of guardians—who are quite willing—their splendid sanatorium at Whiteabbey, and to make it available for patients altogether outside the Poor-law.

Down County Council.

For the post of medical superintendent of the tuberculosis dispensary, which it has been decided to establish in accordance with the directions of Down county council, there are no less than 29 applications. The special committee appointed by the council to look into the matter have selected a short list of candidates, and the final appointment will be made by the council on August 9th.

August 6th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Hospital for Sick Children, Glasgow.

SOME time ago it was found that the buildings of the Royal Hospital for Sick Children were quite inadequate for the number of cases that had to be dealt with. The directors issued an appeal for funds, and when they had sufficient money in hand to justify them in going forward plans were drawn up by Messrs. John Burnett and Sons, and building operations were commenced. Externally the buildings are to be absolutely plain, while the construction will be of the most modern character. The accommodation is to be at first for 200 children, and the arrangement of the building is such as to reduce to a minimum any possibility of infection being carried from ward to ward, should by any chance an outbreak of infectious disease occur in hospital. The administrative block with accommodation for the staff is now well advanced towards completion. As regards the rest of the buildings, the wards are large and airy, and there are one or two special features which are new and particularly adapted for a children's hospital. The windows have low sills, but they are thoroughly protected to prevent the children falling out. Adjoining each ward is a large playroom intended for children who are able to move about. A glass partition separates the playroom from the wards, permitting the nurses to overlook both apartments. Adjoining the wards there are the usual kitchens, and there are small wards with glass partitions where patients can, if necessary, be isolated for 24 hours before being admitted to the large wards. One of the ward blocks is specially designed for infants accompanied by nursing mothers. The admission department contains the porter's house and waiting-room accommodation for mothers and children. Four examination rooms have been provided, so that if by any chance an infectious case is discovered it can be isolated immediately. These rooms are tiled to the roof, and disinfection can be carried out speedily and thoroughly. Further along the

corridor there are bathrooms for a thorough cleansing of the little patients before they are sent to the wards. The situation of the hospital will be found to be most convenient for the inhabitants of Glasgow and the surrounding districts. Although obtaining the maximum of fresh air, it is in the centre of large working-class localities and is most accessible from all parts by car, train, or subway. Dr. D. J. Mackintosh has been retained as medical expert to advise as regards the arrangements and fittings of the hospital in its construction, and it is expected that when the buildings are completed Glasgow will be well served in its accommodation for those suffering from children's ailments.

Tuberculosis Dispensary for Paisley.

Paisley town council, which all along has shown an active interest in the question of phthisis, has taken this month an important step in deciding to open a dispensary for the treatment of tuberculous patients. It has also been decided either to convert the small-pox hospital at Gockston into a hospital for the treatment of phthisical patients and to erect another small-pox hospital, or else on a new site to erect a new hospital for the treatment of phthisis.

Post-graduate Classes at Western Infirmary, Glasgow.

The medical staff of the Western Infirmary, Glasgow, have arranged to conduct during September post-graduate clinical courses. There will be a course on Rheumatic Affections by Professor R. Stockman; one on Gastric Disorders, by Dr. William MacLennan; one on Nervous Diseases, by Dr. R. Barclay Ness; and one on Diseases of the Skin, by Dr. J. Wyllie Nicol. The hour is from 9 to 10.30 A.M., and the course extends from Sept. 3rd to 27th. Arrangements have been made in such a way that none of the courses overlap as regards hour of meeting.

August 6th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Bed Treatment of Mental Diseases.

ON July 23rd M. Magnan made an important communication to the Academy of Medicine on the Bed Treatment of Mental Diseases, based on his experience in his service at the Hôpital St. Anne. Treatment by enforced rest in bed in a general ward appears best to meet the requirements; it is possible thus to do away with the strait-jacket and the isolated cell. This treatment exercises the happiest influence in the acute febrile forms. Suicides have diminished to the extent that since 1897, out of 4000 patients admitted yearly, there have been only three suicides in men and none in women. M. Magnan concludes, moreover, in favour of the superiority of attendance given by a female staff, and recommends the substitution of male by female attendants in his service.

Treatment of "Trac."

Dr. Pierre Bonnier recently reported to the Société de Biologie his studies on the treatment of "trac," a disease characterised by circulatory disturbances, palpitations, flushings or pallors, instantaneous amnesia, stammering or stuttering, tremors, and by hesitating gait (titubation). All these troubles are the result of a cerebral disturbance secondary to disturbance of the medulla. Dr. Bonnier sought to cure "trac" by extinguishing the medullary reaction by means of nasal cauterisation. The "trac" disappears immediately with all its nervous phenomena. He brought forward many cases in support of his views. One was a fashionable singer, in whom two cauterisations entirely suppressed the fear and the nervous troubles. Another case was that of a comédienne who, after a successful theatrical career of 20 years, was suddenly afflicted by an intense "trac" for two years, so that she had been even compelled to leave the stage in the middle of the performance. One cauterisation entirely suppressed the terrors, and the "trac" radically disappeared. Finally, a comedian suffering from "trac," with extreme perspiration of the face and hands, was never able to play in make-up. In two days he was cured. Dr. Bonnier concluded by saying that "trac" could not resist a few touches of the cautery.

Superstition.

A death has occurred at Paris, through parental credulity, at the hands of a healer known as Antoine. The parents, who were firm believers in the new faith "Antoinistes," on the birth of their daughter four months ago named it Antoinette with a view to attracting to it the spirit of the aforesaid Antoine. Nevertheless, the child continued to cough and groan. The mother became alarmed and wished to call in a medical man, but the father forbade it, and every day for an hour on their knees they concentrated their will in order to attract to the little one the beneficent fluid emanating from the brain of him whom they considered as the revealer of the new religion. One morning they found the child dead, and the State medical man refused the burial permit on the ground that the child had died from lack of care, and the body was sent to the morgue. The parents have been arrested.

Diffuse Hepatitis.

On July 17th M. Sieur stated at the Société de Chirurgie that, in common with most of his army colleagues, he had seen in the colonies a certain number of cases of diffuse hepatitis simulating abscess which were cured either after puncture or by a simple laparotomy which exposed only an enlarged liver without any abscess. The most frequent cause of these cases was dysentery, although sometimes they had been observed as sequelæ of infections of other kinds. The affection begins by sharp pains aggravated by movement, and soon presents the symptoms of an acute infection with convexity (*voussure*) of the thoraco-hepatic region, sometimes increase in volume of the spleen, pleuritic sounds, and great oscillations of temperature resembling those of malarial fever. On laparotomy only an enlarged liver is found; puncture gives exit to a small quantity of blood; and often these measures cause a disappearance of all the symptoms. In any case they suffice to effect relief. It is necessary for success to let out four to five spoonfuls of blood, but there are cases in which the measure is ineffective. Then recourse may be had to laparotomy.

Typhoid Fever.

During eight days some thirty of the Republican Foot-guards have been admitted to hospital presenting symptoms of typhoid fever. The most energetic prophylactic measures have been taken. At the Guards headquarters it was said that many of those admitted were merely suffering from the heat. Typhoid fever was made this week also the subject of a communication to the Academy of Medicine by Professor Soulié, of Algiers. When a serious epidemic of this disease was raging in that city M. Soulié vaccinated 109 persons with the polyvalent antityphoid serum of Dr. Vincent, of Val de Grâce. Among them were 2 medical men, 36 students, 47 women, and children of from 2 to 5 years of age. In the course of the epidemic, which was severe and attacked medical men, nurses, and students, none of those vaccinated contracted the disease, though they continued in close contact with the patients. Only the depressed, the nervous, the overwrought, showed a stronger, but always benign, reaction.

August 6th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

Decrease in the Death-rate of New York.

IN the year 1866, when the Health Department of New York City was organised, the ratio of deaths to each 1000 of the population was 36·31, but last year it was only 15·13. During the present year the death-rate has been steadily declining, as of course it should, though already the figure makes a fair comparative showing. According to a bulletin issued by the New York City Health Department, a comparison of the death-rate of 1910 with that of the first decade under the organisation of the department shows a decrease of about 40 per cent. Without exception the diseases in which a reduction of mortality has been effected belong to the infectious class, while of those diseases in which there has been an increase in the mortality only one, pneumonia, belongs to that group, and a large part of this increase is only apparent, due to a change

in the designation of deaths. From the figures the bulletin draws the obvious moral that enormous advances have been achieved by sanitary science in the last 50 years, so that within certain limitations the inhabitants of any city have it largely within their power to determine the degree of healthfulness their city shall have.

Contract Practice in New York City.

I observe that the basis of the quarrel at present existing between the Commissioners responsible for the working of the National Insurance Act and the British Medical Association is the determination of the English medical profession to have nothing to do with contract practice. They would seem to be well advised. Contract practice, termed in this country "lodge practice," in New York City appears to be fairly common in the poorer districts. A letter was published recently in one of the prominent daily newspapers of New York written by a medical man inveighing in the strongest terms against "lodge practice." According to the writer such practice is in the hands of men who have usually graduated from the worthless medical schools condemned in the Carnegie reports. The payments are, considered on American scale, absurdly low, although in Great Britain they would be held by the medical aid associations to be adequate.

The Question of Bubonic Plague.

The Commission appointed by the United States Government to inquire into plague conditions in Porto Rico returned to this country a few days ago. The Commission consisted of Lieutenant-Colonel Jefferson R. Kean, Major Frederick F. Russell, Lieutenant Frederick H. Foucar and F. G. Howard. Since his return Colonel Kean has stated that he thinks it is only a question of a short time before the port of New York is visited by the plague. He bases his opinion for this pessimistic outlook on the fact that all the piers of New York are of wood, affording excellent harbouring places for rats. He pointed out that infection is caused by rats almost solely, and that rats can gain the shore by means of the wooden piers. He recommended that the wooden structures from the water line to the street should be covered with sheet iron.

An Important Judgment.

Justice Harrison, of the Supreme Court of New Jersey, has given judgment recently in a surgical case in which he holds that a competent surgeon may use his own discretion in an operation in which the patient is under an anæsthetic and cannot direct the surgeon, and may extend the operation without instructions. The case which brought about this decision was that in which a man had recovered damages to the extent of $1000 from a surgeon who had performed a more extensive operation than he had agreed to perform. It may be said that the operation was effective, and that the patient is now well. Justice Harrison, while upholding the common law principle that a surgeon must obtain the consent of a patient before he operates, holds that the unconscious condition of the patient under the anæsthetic would prevent this, and that therefore the common law must give way to the circumstances of the situation, and the patient must abide by his surgeon's discretion.

July 29th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Pasteur Institute.

AT the recent meeting of the Central Committee of the Pasteur Institute in Simla the eleventh annual report was presented. The number of individuals treated during 1911 was 2268, an increase of 195 over the corresponding figure of 1910, though the number of European patients fell from 354 to 297. There was also a marked decline in military patients, the British army supplying only 53 and the Indian army 111. During the year a contribution of Rs.2047 was received on behalf of the extension scheme, making the total Rs.38,487. The total income from all sources, including the balance, was Rs.69,949, and the total expenditure was Rs.46,460, a sum of Rs.24,689 being carried forward. The Hon. Sir Arthur Ker and Surgeon-General Sir C. Pardey Lukis, K.C.S.I., succeed Sir D. P. Masson and the late Nawab Sahib C. Dhanjibhoy as trustees. The committee has been strengthened by the addition of Sir Harcourt Butler, Mr. L. C. Porter, General Sir Malcolm Grover, Surgeon-General A. T. Sloggett, and Lieutenant-Colonel Sir D. Semple, and the staff of the institute during the year by Major W. F. Harvey, I.M.S., and Captain H. W. Acton, I.M.S. Major Harvey in his report refers to the death of Major G. Lamb, late director of the institute, who was early associated with Sir D. Semple in the development of the institute, and to whose initiative the institute owes very largely the present laboratory accommodation. The report gives statistical tables showing, among other things, that 2268 persons were treated, of whom 43—viz., 42 Indians and 1 European—died from hydrophobia, and that dogs, and after them jackals, account for the greatest number of the bitten.

The Water-supply of Hyderabad.

Owing to the serious defects of the municipal waterworks at Hyderabad in Sind the city has been threatened with a water famine in the middle of the hot weather, and an investigation by an expert in municipal engineering, in the service of the Bombay Government, has been made. His report is a scathing condemnation of the waterworks department of the municipality and also of the neglect on the part of the Municipal Commissioners. It points out that, notwithstanding that Government had sanctioned an additional water-supply project, the municipality hurriedly purchased new machinery different in make and size from that selected by the engineer, and without the customary precaution of obtaining a guarantee from the agents that it would produce certain specified results under penalty of rejection or fine. No clear justification for this course is advanced, as the city already had a duplicate plant which had been used for 10 years, so that the plea of urgency is not substantiated.

The New Delhi.

Town-planners and other experts seem generally to hold that the area to the south of the modern city and west of the more ancient cities offers a combination of conditions favourable to secure health and good drainage, with certain æsthetic advantages that render it suitable for the new capital. This is the area mentioned by the Viceroy in his Budget speech last March. Taking the site for the Imperial city as distinct from that for the new cantonments, it may be said roughly to lie in a triangular space bounded on the west by high rocky ground which is a prolongation to the south of the historic Ridge, and on the east by the road leading to the Kutb Minar. As to the combination of good conditions of the site which commends itself to the committee, the drainage slope from the high ground on the west to the Jumna River is about 90 feet in the mile, while the level of the subsoil water is some 40 feet below the surface. There is thus no chance of water-logging, and the reproach that it was intended to found a new city among the "swamps of Delhi" can no longer be justly repeated. The tombs and ruins will be outside the area to be built upon, and sound, wholesome ground will be broken for the foundations of the public and private buildings that will be erected. About the centre of the area is the parklike land of Taltatore. One can imagine a site for Government House, distant from the Jama Masjid in a south-westerly direction just as far as Circuit House is on the north-west. A fine broad road from the north can be aligned to lead to this central spot, with other roads giving well-planned channels of communication. Public offices could be located in the north part of the area with quarters for clerical establishments, and near at hand will be the space for those places of business and shops which the new Delhi will need. With the river to supply abundant water, pumped to proper levels for distribution, there would be no lack of facilities for keeping the parks and gardens in perfect order. Playing grounds are not likely to be overlooked, for sports and pastimes conduce to the health of town dwellers. On the whole, the proposals of the committee will commend themselves to all acquainted with Delhi and its surroundings.

Lady Hardinge's Linen League for Hospitals.

The extension of Lady Hardinge's Linen League to the hospitals of the Punjab and the North-West Frontier Province should be welcomed by all who take an interest in

these institutions. Lady Hardinge invites ladies to become associate members or annual subscribers to the league, the associates undertaking to get nine members and collect their contributions of linen by September of each year. The money provided by annual subscribers will be devoted to the purchase of special hospital requirements. A generous response is to be hoped for.

Science in the Calcutta University.

At a recent special meeting of the Senate of Calcutta University the endowment made by Mr. T. Palit, barrister, for founding chairs in chemistry and physics and for the establishment of a university laboratory was formally accepted, and the two chairs were instituted. Mr. Palit has made over to the University property worth more than 7 lakhs of rupees for the foundation of the professorships, and for the establishment of a university chemical laboratory. This is by far the largest donation the University has yet received. Out of the income derived from the donation the two chairs will be maintained, and upon the land which lies at a short distance from Senate House the University will erect and equip a laboratory at a cost of not less than 2½ lakhs of rupees. The University has been able to supplement the munificent gift of Mr. Palit by 2½ lakhs from its reserve fund. The total amount available consequently for this great undertaking is a little more than 9½ lakhs (£63,000). The Senate is thus in a position to take the first step towards the foundation of a University College of Science and Technology. The founder states in the trust deed that his object is the promotion and diffusion of scientific technical education and the cultivation and advancement of science, pure and applied, amongst his countrymen by and through indigenous agency. The chairs founded by him are always to be filled by Indians, but the professor-elect may in the discretion of the governing body be required to receive special training abroad before he enters upon the discharge of the duties of his office. During this period he will be in receipt of a suitable allowance and travelling expenses, which will be deemed part of the cost of the maintenance of the chair.

Rangoon Water-supply.

In spite of the fact that over 40 lakhs of rupees have been spent in the past on waterworks at Rangoon, the chief engineer of the Rangoon municipality has found that with the exception of a very small area no part of Rangoon has an ample and sufficient water-supply either by day or night, whether in dry weather or in rains. Proposals have been drawn up by the engineer involving an estimate of 32 lakhs of rupees, and a full and careful summary of the present position regarding the water-supply of Rangoon is to be drawn up and the best expert advice obtainable in Europe is to be sought on the scheme the engineer has laid before the committee.

The Women's Indian Medical Service.

The recent question and answer in Parliament regarding the scheme for a Women's Indian Medical Service refers to the scheme for an improvement in the conditions under which lady doctors serve under the Lady Dufferin Association, the idea being to have a service with definite increments of pay, regular leave rules, a provident fund, &c., along with some certainty of the tenure of appointments.

Cholera in Rangoon.

A serious outbreak of cholera is reported at the lunatic asylum, Rangoon. During the last few days there have been 10 deaths and some 26 cases.

The Prevention of Plague by Oil.

A large number of letters and a number of wild statements on this subject have appeared lately in the Indian press. Dr. A. G. Newell, the health officer of Lahore, in a recent issue of the *Pioneer* ascribes the alleged immunity of oilmen to plague to the fact that fleas have acute eyesight and probably acute smell, which prevent them from jumping on to an oily surface, where they would get clogged with oil. Their proboscis also would get clogged and prevent them from biting effectively, and, moreover, infected fæces of the flea would lodge in the oil.

July 11th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Melbourne Hospital: the New Buildings Fund.

AT the recent laying of the foundation-stone of the building the chairman of committee, Mr. J. Grice, announced that a sum of £60,000 was required to complete and equip the new hospital, on which £120,000 have already been expended. A public subscription list was opened and generously responded to, a sum of £35,000 being raised in about six weeks. As the Victorian Government has promised £25,000 on a pound for pound basis, the total required is now complete and the fund has been closed.

Federal Quarantine.

An unusual position arose recently which has drawn attention to the position of quarantine under the Federal Act. The steamer *Irishman* arrived at Melbourne with 60 cases of measles on board. Measles is not a quarantinable disease under the Quarantine Act, and the vessel was accordingly granted *pratique* by the Federal officials and came up to the wharves. The State health officials declined to let any passengers land, and an *impasse* was created which was finally terminated by the Federal department taking charge of the vessel and her passengers at the Portsea quarantine station, but insisting that all expense should be borne by the State. The opinion of Professor Harrison Moore, dean of the Faculty of Law in Melbourne University, has been taken on certain aspects of the Quarantine Act, and it is stated that he has given the opinion that the sole power of quarantine has never been legally acquired by the Federal department as was intended by the Act. It seems very doubtful whether after such transfer has been legally made the State authorities would have any power to quarantine any disease. Under the old State Act in Victoria the officials had power to quarantine "any dangerous infectious disease," but under the Federal Act the diseases are specified. The present situation is untenable in that it has led to frequent friction between two sets of officials, and steps will be taken to amend the Act.

A State Tuberculosis Dispensary at Sydney.

A tuberculosis dispensary is to be opened in Sydney under subsidy by the Government. The following medical men have been appointed an advisory committee on tuberculosis to the New South Wales Government: Sir H. N. MacLaurin, Sir P. S. Jones, Dr. M. McCormick, Dr. G. E. Rennie, Dr. S. Gillies, Mr. C. P. B. Clubbe, Dr. S. Jamieson, Dr. F. G. Griffiths, Dr. H. Palmer, Dr. W. Hull, Dr. J. B. Nash, Dr. C. Purser, and Dr. A. A. MacCulloch.

Brisbane Hospital.

The sixty-third annual report shows that 4981 in-patients were treated during 1911 with a mortality over all of 6·88 per cent., or of 5 per cent. if those dying within the first 48 hours be excluded. The out-patients totalled 27,186. Financially the year was the best yet experienced. The year opened with an over-draft of nearly £6000, which was reduced to £2000.

A Bonus for Babies.

The Federal Government proposes to introduce legislation providing for the payment of a bonus on the registration of birth of every child born in the Commonwealth. The Prime Minister stated that such a proposal had been the dream of his life, and that he purposed making the bonus a substantial one, about £5, which would tide the mother over a trying and expensive time. It is estimated that on present figures a sum of about £600,000 per annum would be required for such an outlay. The measure may be regarded as already decided, for there is a Labour majority in both legislative chambers. Further enactments in the same direction are promised in the form of an infant pension and free meals to all State school children.

July 6th.

UNIVERSITY OF CAMBRIDGE: DIPLOMA IN PUBLIC HEALTH.—The courses commence on Oct. 11th, at 10 A.M. Further particulars can be obtained from Mr. J. E. Purvis, Chemical Laboratory, Pembroke-street, Cambridge.

Obituary.

EDWARD STANMORE BISHOP, F.R.C.S. ENG.,

HONORARY SURGEON TO ANCOATS HOSPITAL AND SURGEON TO THE JEWISH MEMORIAL HOSPITAL, MANCHESTER; PRESIDENT OF THE MANCHESTER CLINICAL SOCIETY.

WE regret to announce the death of Mr. Stanmore Bishop, which took place at his house in Manchester on July 25th at the age of 64, the result of an internal complaint from which he had suffered for some months.

Mr. Bishop studied in Manchester at what was known as Mr. Turner's School, or the Pine-street Royal School of Medicine, and also at the London Hospital. He took the Membership of the Royal College of Surgeons in 1871 and the Fellowship in 1884. He settled in the Ardwick district of Manchester, and for several years he devoted himself to general practice. He was elected an honorary surgeon to the Ancoats Hospital, and having resolved to devote himself to surgery he gradually relinquished general practice. At first general surgery was his field, but as the years wore on he limited his work more especially to abdominal surgery, and latterly to the field of the gynæcologist. He was the author of many papers on the subject which he had made his own. His resources in the technique of operations were very considerable.

To the columns of THE LANCET Mr. Bishop was a frequent contributor, and both his original papers and addresses, the last of which latter to appear in our columns was the "Address on Surgical Gastric Disorders," delivered before the Blackburn Medical Society in the early autumn of last year, were marked by clear and vigorous thinking. Of his books, he published in 1901 "Uterine Fibromyomata, their Pathology, Diagnosis, and Treatment," which, as might be expected from his predilection for surgery, was somewhat coloured by bias towards operative treatment; but it was replete with information in a form that made reference a pleasure. "The Essentials of Pelvic Diagnosis with Illustrative Cases," was published two years later, and in this work he showed not only his desire to smooth the path of the student, but also his ability as a teacher, for it was an admirable attempt to clarify the mental processes necessary in deducing disease from the absence or presence of symptoms. In 1909 he published "Lectures on Surgical Nursing." A "New Operation for Vesico-vaginal Fistula," contributed to the Medical Society's Transactions in 1897; "Changes Observed in Uteri, the Seat of Fibromyoma," published in the *British Gynæcological Journal* in 1902; "Evolution of Modern Operations for Hysterectomy" in the *Practitioner* in 1908; and "Addresses on Cholelithiasis," *British Medical Journal*; "Points in Gastric Surgery," *Surgery, Gynæcology, and Obstetrics*, and "Gastroenterostomy," Transactions of the Royal Society of Medicine in 1909, were among his other numerous contributions to the literature of his profession. In addition to his appointments of honorary surgeon to Ancoats Hospital and surgeon for diseases of women at the Jewish Memorial Hospital, Manchester, he was a member of the council of the Royal Society of Medicine, president of the Manchester Clinical Society, and vice-president of the Manchester Medical Society.

A man of determined purpose who overcame in his career many obstacles, he was devotedly attached to Ancoats Hospital. He was widely known as a surgeon in connexion with the hospital, and did much to place it in that position of importance both as a hospital and a teaching school which it occupies. He had strong aspirations to become a teacher in the medical school, but his desires were not realised. He was a man of great energy, somewhat reserved in manner, a great lover of music, and one who will be much missed by his friends. His remains were cremated at the crematorium on Saturday, July 27th.

WILLIAM JEFFREY, M.D. EDIN., L.R.C.S. EDIN.

Dr. William Jeffrey died on July 16th in Jedburgh, where he had practised for more than 40 years. He was born about 70 years ago in Berwickshire, the son of a well-known and highly respected practitioner of medicine, and received his professional education at the University of Edinburgh, graduating as M.D. in 1863 and taking the Licence of the Royal College of Surgeons of Edinburgh in the same year. He distinguished himself as a student, and as resident physician at the Edinburgh Royal Infirmary to Dr. Warburton Begbie. He was one of a group of whom several rose to distinction in their profession, but of whom few survive. Sir Dyce Duckworth (one of the group), in his introduction to the published works of Dr. Warburton Begbie, speaks very highly of Dr. Jeffrey, who preferred to the lure of city practice, with its possibilities of distinction, the arduous but more simple life of the country doctor. He was a man of fine physique and striking presence, with notable musical gifts, a lover of literature, and the possessor of a strong clinical instinct.

Dr. J. A. MacDougall writes: "An adept in his profession in all its branches, Jeffrey possessed in full measure the knowledge which comes from wide and constant reading and most carefully garnered practical experience, and as a result he had that well-founded self-confidence and quick and ready judgment which, to a man placed as he ofttimes was far from professional help, is of paramount and inestimable value—a value demonstrated by his sole and successful management of many a grievously hard labour and the performance of not a few of the major operations of surgery, his coachman acting at times the part of anæsthetist! To-day the Scottish Border mourns his loss. In the days to come the name of William Jeffrey will there be honoured and cherished, for he was one of those of whom it may be said, in the words of one of his own favourite authors, that 'the best part of a good man's life are his little unremembered acts of love.' Jeffrey's life was—as are, indeed, the lives of many doctors—full of them: acts the thought and remembrance of which drew forth from a great Scottish thinker and divine this belief: 'The evil that men do lives after them, but I do not believe the *good* is often buried with their bones. It rises from their graves and walks the earth until the resurrection morning.' Of many a doctor of Jeffrey's type this belief must ever hold good."

ALBERT BLECKLY CLARKE, L.S.A., L.R.C.S. EDIN.

Mr. Albert Bleckly Clarke, who had been for 26 years in practice in Shebbear, died on July 25th at his home, The Lawn, Shebbear. His death occurred, so far as the immediate present is concerned, unexpectedly, though he had been for some time in failing health, and had quite recently been in London to obtain special medical advice. On returning to Shebbear he resigned his appointments and disposed of his practice, in view of his approaching end, which it was foreseen could not long be delayed

Mr. Clarke was born in 1860 at Chatteris, Cambs., and was the youngest son of the late Mr. William Clarke, a member of the Society of Friends. He received his early education at a private school at Harrogate, and his professional education at Charing Cross Hospital, taking the L.S.A. in 1881 and the L.R.C.S. Edin. in 1883. He settled in Shebbear in the "eighties," where he acquired an extensive practice covering a large territory. He was medical officer for the Shebbear and Marland districts of the Torrington Union. He was very highly esteemed, and his genial manner made him very popular.

Mr. Clarke leaves a widow and four children, for whom much sympathy is felt. His eldest son is a student of medicine at the University of Aberdeen. The Vicar of Shebbear, in his sermon on July 28th, in alluding to the deceased, said that Albert Bleckly Clarke "was a deeply religious man, but did not proclaim it to the world. Throughout his professional career we respected him for his quiet, unostentatious, honourable dealings, and the filled church at the funeral testified of their sorrow at the loss of one who had by night and day attended to their needs whether rich or poor."

Mr. Kenneth W. Millican writes: "Albert Bleckly Clarke was one of the most single-hearted men I have ever met. He was assistant to me in Warwickshire in the early 'eighties,' and the close friendship then established continued unbroken until his death, notwithstanding that for 20 years the Atlantic Ocean divided us. Mr. Clarke was a man of the highest ideals and the most scrupulous honour, poetical in temperament—he was a keen student of poetry and wrote verses of more than average merit—yet strongly practical. His intense appreciation of the humorous side of things no doubt contributed largely to his great geniality. He lived

a simple life, but one rendered full by conscientious attention to the duty that lay nearest to hand; a course that, though it might not lead to eminence, gained for him the admiration and affection of all who knew him intimately."

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. K. Neidhart, late medical referee of the Hessian Government, aged 76.—Dr. Emilian Kaufmann, professor of laryngology and otology in the Bohemian University of Prague.—Dr. Hecker, physician to the municipal asylum, St. Petersburg, being attacked with a knife by a patient.—Dr. Carlo Platschick, *privat-docent* of odontology in the University of Pavia.—Dr. Josef Disse, honorary professor of anatomy in the University of Marburg, aged 60. He was professor of anatomy in the University of Tokyo from 1880 to 1887. Afterwards he worked with Waldeyer in Berlin. He subsequently held chairs in Göttingen and Halle, going to Marburg in 1895. His published papers dealt mainly with histology.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At the Preliminary Science Examination for the Licence in Dental Surgery the following candidates were approved in the undermentioned subjects, viz.:—

Chemistry and Physics.—Harold Paxton Baylis, Brighton Municipal College; Vernon Wilfrid Ayres Bell-Bonnett, Royal Dental Hospital; James Arthur Carson, Cardiff and Royal Dental Hospital; Basil Clothier, Holt School of Science, Birkenhead; William Henry Cooper, Sheffield University; Arthur Cyril Dean, Birkbeck College; George Dee, Guy's Hospital; Richard John Spauli Ellis, Royal Dental Hospital; Robert William Fyffe, Sheffield University; Julius Gillis, Royal Dental Hospital; Arthur Donald Gregg, University College, Nottingham; Ralph Hawksworth, Sheffield University; Gawin Herdman, Wandsworth Technical Institute; Francis William Holgreaves, Liverpool University; Thomas Charles Stretton Jones, Royal Dental Hospital; Eric William Joyner, Bristol University; Ralph Lea Klosz, Royal Dental Hospital; George Francis Maguire, Leeds University; Philip Thomas Pearce, Royal Albert Memorial College, Exeter; Leonard Montague Peberdy, Technical School, Leicester; Ernest Russell Ray, Royal Dental Hospital; Joseph Walter Royston, Oundle School; Charles Shelton, Royal Dental Hospital; Robert Augustus Waters, Derby Technical College; James Thomson Wood, Royal Dental Hospital; Trevor Corry Woodhouse, Middlesex Hospital; and Sydney Molero Wright, Middlesex Hospital.

Chemistry.—Howard Bates, Liverpool University; Ellis Larner Cooke, Battersea Polytechnic; Wilfrid George Hollands, Polytechnic Institute; George Douglas Moore, Middlesex Hospital; Cecil Murray-Shirreff, Bristol University; William Douglas Penfold, Brighton Municipal Technical College; Alfred Edward Pool, Sheffield University; Kenneth Stanley Roberts, Brighton Municipal Technical College; Cecil Alexander Wilson, Technical School, Southend; and Robert Aloysius Worsley, Liverpool University.

Physics.—Reginald James Robinson Baker, Liverpool University; Charles Alfred Ernest Cook, Norwich Technical Institute; Alfred Kenneth Ince Jones, Middlesex Hospital; Stephen Alphonsus McCormack and Ronald Harold Vyvyan Whybro, Royal Dental Hospital; and William Cochrane Woodall, Salford Royal Technical Institute.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

The following is a list of the triple qualification passes of the Royal Colleges of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow, the examinations for which were held in Glasgow from July 10th–27th:—

FIRST EXAMINATION.

Catherine Mitchell Anderson, Broughty Ferry; William Campbell Borrie, Birnam; John Stewart Marshall Conner, Glasgow; Edward Dias, Goa; William O'Gorman Donoghue, Glasgow; Peter Fraser Fairley, Hamilton; Charles Harris, Greenock; Thomas Jackson, Wishaw; William Paterson Hay Lightbody, Glasgow; Ronald MacKinnon, Skye; Duncan Reid Nicol, Banchory; Alexander Arthur Balfour Noble, Belfast; George Lynn Pillans, Glasgow; John Robert Beith Robb, Glasgow.

SECOND EXAMINATION.

Luckhimonie Ghose, India; Charles Clouston Irvine, Arran; Harold Oliver Martin, Nottingham; William M'Alpine, Wishaw; James M'Farlane, Paisley; Sauthosham Swaminathan, India; and John Walker, Blantyre.

THIRD EXAMINATION.

Andrew Crawford, Glasgow; Robert John Croxford, Gloucester; George Boyle Hanna, Antrim; James MacRae, Caithness; William Arthur Rees, Ilfracombe; James Remers, Manchester; Claud Aldous Slaughter, India; and Babu Singh Thakur, India.

FINAL EXAMINATION.

James Grant Morrin, Glasgow; Frank Walter White, Gosforth; Hormazd Ardeshir Topalia, Bombay; George William Mason, Pontypool, Mon.; Thomas Nicholson Wilthew, Hexham; John Peter Carroll, co. Cork; Joseph Moses Coplans, London; Leopoldo Cajitano Mascarenhas, India; Kul Want, India; Edward Charles Hamilton, Edinburgh; Furdon Framji Keravalla, India; and Patrick Walsh, Kilfinane, co. Limerick.

UNIVERSITY OF LONDON.—At examinations held in July the following candidates were successful:—

FIRST EXAMINATION FOR MEDICAL DEGREES

Eric Miles Atkinson, Epsom College; John Anthony Birrell, University College, Cardiff; Alethea Josephine Bolton, University College, Nottingham; Marian Noel Bostock, London (Royal Free Hospital) School of Medicine for Women; William Wallace Brown, St. Thomas's Hospital; Leslie James Forman Bull, St. Bartholomew's Hospital; Albert William Buchan Carless, King's College; Louis Arthur Celestin, University Tutorial College; John D'Arcy Champney and Clement Clapton Chesterman, University of Bristol; Ailwyn Herbert Clarke, St. Thomas's Hospital; Doris May Collins, London (Royal Free Hospital) School of Medicine for Women; Philip Nield Cook, St. Bartholomew's Hospital; Joseph Monlas Courtney, St. Mary's Hospital; Ralph Coyte, St. Bartholomew's Hospital; Dorothy Trevor Daintree, London (Royal Free Hospital) School of Medicine for Women; Thomas Morris Davies, St. Mary's Hospital; Mahmoud Abu Bakr Demerdash, University College; Hilda Margaret Denton, London (Royal Free Hospital) School of Medicine for Women; Evariste de Robillard, Guy's Hospital; Kingsley Dykes, Dulwich College; Thomas Gray Dykes, University College, Cardiff, and University of Liverpool; Thomas Stenner Evans, University College, Cardiff; Guy Fehrsen, London Hospital; Jean Louis Roger Fortier, St. Bartholomew's Hospital; *Andrew Radburne Fuller, St. Mary's Hospital; William Bashall Gabriel, Epsom College; Lawrence Gill, Guy's Hospital; †William Gover, Dulwich College; Arthur Reginald Hart, King's College and Westminster Hospital; Richard Brunel Hawes, St. Thomas's Hospital; Nathan Norris Haysom and William Broke Heywood-Waddington, St. Bartholomew's Hospital; Eric Blandford Hickson, University College; Frederick George Edward Hill, University of Sheffield; Joseph Christopher Campbell Howe, Guy's Hospital; John Francis Howells, Swansea Technical College; Patrick Hughes, St. Mary's Hospital; John Basil Hume, St. Bartholomew's Hospital; James Wynn Hyatt, London Hospital; Helen Ingleby, London (Royal Free Hospital) School of Medicine for Women; Stewart Russell Johnston, University College; Thomas John-Thomas, King's College; Charles Ainger Kirton, University College; Victor John Frederick Lack, London Hospital; Harold Warburton Lewis, Middlesex Hospital; Naunton Morgan Lewis, Cardiff High School; Rhys Thomas Lewis,* University College, Cardiff; Adrian Lyell-Tayler, St. Mary's Hospital; Malcolm Henry MacKeith, Hartley University College; Francis Courtenay Mason, B.A., Birkbeck College; Cecily Margaret Evadne Maude, London (Royal Free Hospital) School of Medicine for Women and University Tutorial College; *†Ralph George Mayer, Guy's Hospital; ‡Maurice William Holt Miles, St. Thomas's Hospital; Leslie Clifford Moore, University of Liverpool; Geoffrey Moulson, St. Thomas's Hospital; Ray Verner Norton, London (Royal Free Hospital) School of Medicine for Women; Jehangir Hormusji Oonvala, Grant Medical College, Bombay, and University of Glasgow; Margaret Stuart Palmer, London (Royal Free Hospital) School of Medicine for Women; Eric Finch Peck, University of Liverpool; John William Glanmor Phillips, St. Mary's Hospital; Bertram Henzell Pidcock, St. Bartholomew's Hospital; ‡Cyril Valentine Pink, St. Thomas's Hospital; Hywel Tegid Prys-Jones, University College, Cardiff; Walter Murad Abdul Rahman, University College; Kenneth Mackinnon Ross, London Hospital; William Richard Rowlands, University of Liverpool, Morris Schwartz, University College; Alan Selby-Green, Middlesex Hospital; Ahmad Shafeek, St. Thomas's Hospital; Robert Gordon Simpson, Plymouth Science Art and Technical Schools; George Harold Sims, Derby Technical College; Lily Dorothea Taylor, University College, Nottingham; Aubrey Leonard Telling, University of Leeds; Rustam Navroji Vakil, University College; Lotty Weihermann, University Tutorial College; John Prichard Williams, Cardiff High School; †‡Oscar Williams, University College, Cardiff; Thomas Pearse Williams, Plymouth Technical Schools; Alfred Williams-Walker, University of Birmingham; and William Yeoman, University College.

* Distinguished in General Biology.
† Distinguished in Inorganic Chemistry. ‡ Distinguished in Physics.

SECOND EXAMINATION FOR MEDICAL DEGREES, PART I.

John Struan Alexander, University College; Frank Macdonald Allchin, Hannah Katherine Alton, and Robert Townly Bailey, King's College; Geoffrey Thomas Baker, Middlesex Hospital; Ruth Balfour, Newnham College; Gordon Eric Barker, St. Mary's Hospital; Walter Ralph Barrett, London Hospital; Richard Vincent Bevan, Charing Cross Hospital and King's College; Joseph Warwick Bigger, Trinity College, Dublin; John Archibald Binning, University College; Edgar Scott Bowes, Guy's Hospital; Harold George Broadbridge, London Hospital; Oliver St. Leger Campion, Guy's Hospital; Louis Abel Celestin, University College; Hester Mary Church, London (Royal Free Hospital) School of Medicine for Women; Alfred Wilkinson Cocking, Guy's Hospital; Walter Herbert Coldwell, King's College; Ronald Campbell Cooke, St. Thomas's Hospital; Thomas Reginald Davies, St. Mary's Hospital; *Leonard Snowden Debenham, Guy's Hospital; Allen Roy Dingley, St. Bartholomew's Hospital; Reginald Oliver Eades, University College; Charles Yarrow Eccles, St. Thomas's Hospital; Stanley Harold Edgar, University College, Nottingham; Langdon Percival Lorimer Edwards, Whitgift Grammar School; Leonard Wynne Evans, University College, Bangor; Roy Fazan, Middlesex Hospital; Marjorie Ellen Franklin, London (Royal Free Hospital) School of Medicine for Women; William Lawson Mabson Gabriel, University of Leeds; John William Hawksley Grice, Guy's Hospital; Grace Mary Gulston, University College, Cardiff; Arnold Guy Harsant, London (Royal

Free Hospital); School of Medicine for Women; Mohamed Hamza Hassan, King's College; Norman Hammond Hill, St. Bartholomew's Hospital; Harry Mainwaring Holt, University of Leeds; George Philip Buckingham Huddy, London Hospital; Stanley Walter Isaacs, St. Bartholomew's Hospital; John Powell Jones Jenkins, University College, Cardiff; David Bruce Stewart Jones, King's College and Charing Cross Hospital; George Spencer Lajus Kemp, University of Sheffield; Harry Korn, B.Sc., King's College and London Hospital; Robert Percival Langford-Jones, University College; Mildred Beatrix Langley, London (Royal Free Hospital) School of Medicine for Women; Frank Fawckner Langridge, London Hospital; Francis Reginald Law, University of Leeds and private study; Herman Lewis, London Hospital; Ifor Hughes Lloyd, King's College; Katherine Lloyd, London (Royal Free Hospital) School of Medicine for Women; Douglas Loughlin and Sydney Alan Stormer Malkin, University College; Francis Keene Marriott, London Hospital; Marie Matilda Alice Moralt, London (Royal Free Hospital) School of Medicine for Women; Richard Glyn Morgan, St. Bartholomew's Hospital; John Kerr Muir, Middlesex Hospital; Sinnethamby Muttiah, London Hospital; Eleanor Joyce Partridge, London (Royal Free Hospital) School of Medicine for Women; *Bernard Charles William Pasco, King's College; *Arthur Winnifred Peeris, University College; Robert Louis Portway, Guy's Hospital; Rhys Vaughan Powell, University College, Cardiff; Theodore Ernest Roberts, Royal Technical College, Glasgow; Elisabeth Henrietta Schwab, London (Royal Free Hospital) School of Medicine for Women; Eric William Scofield, St. Bartholomew's Hospital; Nirendra Mohan Sen-Gupta, London Hospital; William Steadman, University College; Harold Gane Stormer, St. Thomas's Hospital; Raymond Stowers, University College; Edward Cowper Tamplin, St. Thomas's Hospital; Aubrey Clifford Teuten, St. Mary's Hospital; Martin Baird Moore Tweed, Guy's Hospital; John Ferdinand Twort, B.Sc., London Hospital; William John Vance and Samuel Vidot, Guy's Hospital; William John Greaves Walker and Josephine Leigh Hunt Wallace, University College; John Woollaston Wayte, St. Thomas's Hospital; William Ronald White-Cooper, St. Bartholomew's Hospital; James de Silva Wijeyeratne, University College; Alfred Frank Wyatt, London Hospital; and Cecil Fewster Boynton Wyborn and George Cuthbert Nelson Younger, Middlesex Hospital.

* Awarded a mark of distinction.

FOREIGN UNIVERSITY INTELLIGENCE.—*Freiburg:* Dr. H. von Berenberg-Gossler has been recognised as *privat-docent* of Anatomy. Dr. Mangold, *privat-docent* of physiology, has been granted the title of Extraordinary Professor.—*Kiel:* Dr. Reiner Müller has been granted the title of Professor.—*Königsberg:* Dr. Sokolowski has been appointed Instructor in the Aural Phonetic System.—*Lemberg:* Dr. Georg Modrakowski has been granted the title of Extraordinary Professor.—*Vienna:* Dr. Volk has been recognised as *privat-docent* of Dermatology.

APPOINTMENTS TO SCHOOL MEDICAL OFFICERSHIPS UNDER THE LONDON COUNTY COUNCIL.—Following its decision to appoint in place of 80 part-time school doctors in the public health department 24 full-time medical assistants (5 permanently and 19 temporarily) and 4 additional full-time medical assistants, the London County Council on July 30th approved the following recommendations of the Establishment Committee:—

(*a*) That Mr. J. G. Forbes, M.A., M.D. Cantab., M.R.C.P. Lond., D.P.H. Cantab., medical assistant in the public health department, be promoted to fill the position of medical assistant, at the commencing salary of £500 a year, rising by annual increments of £25 to £600 a year.

(*b*) That Mr. A. W. Sikes, half-time medical officer in the public health department, and Mr. F. W. Higgs, M.D., B.S. Lond., M.R.C.P. Lond., be appointed to fill the positions of medical assistant in the public health department, each at the commencing salary of £500 a year, rising by annual increments of £25 to £600 a year.

(*c*) That Miss J. L. D. Fairfield, M.D. Edin., D.P.H. Lond., Miss J. R. F. Gilmour, M.B., Ch.B. Glasg., D.P.H. Edin., Mr. A. J. Malcolm, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Cantab., Mr. G. Chaikin, B.A. Lond., M.R.C.S. Eng., L.R.C.P. Lond., Mr. H. R. Kidner, M.B. Lond., B.Sc. Lond., D.P.H. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., and Mr. A. G. L. Reade, M.R.C.S. Eng., L.R.C.P. Lond., be appointed medical assistants in the public health department, each at a commencing salary of £400 a year, rising by annual increments of £25 to £500 a year.

(*d*) That Mr. A. R. Cowell, Mr. A. M. Davies, Miss J. G. Duncan, Miss M. G. Edis, Mr. C. Burrows, Miss H. B. Hanson, Mr. C. T. W. Hirsch, Mr. C. F. L. Leipoldt, Miss M. C. Macdonnald, Mr. T. J. T. McHattie, Mr. H. F. Marris, Mr. R. H. Norman, Mr. E. F. Palgrave, Mr. A. J. S. Pinchin, Miss M. Russell, Miss J. A. Scott, Mr. W. J. M. Slowan, Mr. L. R. Tosswill, Mr. Williams, and Mr. F. T. H. Wood be employed temporarily for one year as medical assistants in the public health department, each at a salary of £400 a year.

It was stated that there were in all 306 applications for the various positions.

THE EXETER MEDICAL CHARITIES.—The Exeter Amateur Operatic Society, as a result of its recent performances of *Haddon Hall*, has raised £110 for the Exeter medical charities. This society has distributed £710 to the charities from its six annual performances.

THE Queen has sent £10 10*s.* towards the rebuilding of the Chelsea Hospital for Women and £10 10*s.* towards the rebuilding of its nurses' home.

UNIVERSITY COLLEGE, LONDON.—The following elections have been made to scholarships tenable in the Faculty of Medical Sciences at University College:—To the Bucknill Scholarship of 135 guineas: C. J. C. Cooke, Technical College, Derby. To the First Medical Exhibition of 55 guineas: E. Sakoschansky, University College, Nottingham. To the Second Medical Exhibition of 55 guineas: T. M. Cunnington, University College, London, and University College School.

MINERS' NYSTAGMUS.—As the outcome of a discussion on Miners' Nystagmus, which was held on July 19th last at a meeting of the Oxford Ophthalmological Congress, the following resolution was unanimously passed:—

That in the opinion of the Congress the character of the illumination is the chief factor in the production of miners' nystagmus, and that a Departmental Committee should be appointed to make inquiries into, and to report upon, the exact conditions under which the disease occurs.

WEST SUSSEX COUNTY COUNCIL AND CONSUMPTION.—The West Sussex county council at its meeting on July 26th approved in principle the suggestions of Dr. A. G. R. Cameron, medical officer of health of the county, as to what steps should be taken on the interim report by the Departmental Committee on Tuberculosis as to the provision for the treatment of the disease under the National Insurance Act, 1911. The public health committee of the council is of the opinion that before deciding on any definite scheme the committee should be furnished with details as to the numbers it will probably have to deal with, and that in order to obtain these facts the coöperation of the district medical officers, the general practitioners, and the various nursing associations and hospital authorities should be invited. The county council ratified this recommendation. Dr. Cameron in an exhaustive report details his scheme under seven heads—namely: (1) educational work; (2) home visiting and the appointment of nurses or health visitors; (3) public health preventive work; (4) the establishment of tuberculosis dispensaries; (5) institutional treatment at sanatoriums and hospitals; (6) the provision of a county laboratory; and (7) the formation of after-care committees.

LITERARY INTELLIGENCE. — As a permanent memorial of the celebration of its 250th anniversary, the Royal Society has had printed, at the Oxford University Press, collotype facsimiles of all the signatures of the founders, patrons, and fellows of the Society recorded in its first journal book and the charter-book from 1660 to the present time. The volume of signatures (which measures 18 in. by 14 in.) contains a photogravure portrait of Charles II., who gave the society its charter, and a preface by Sir A. Geikie, the President. This memorial is now about to be issued by Mr. Henry Frowde, together with a third edition, entirely revised and rearranged, of "The Record of the Royal Society," originally edited by Professor Michael Foster and Professor A. W. Rücker.—Mr. H. K. Lewis announces for early publication new editions of "Mind and its Disorders," by Dr. W. H. B. Stoddart, of the Bethlem Royal Hospital; "Clinical Bacteriology and Hæmatology for Practitioners," by Dr. W. d'Este Emery; and "Materia Medica and Pharmacy for Medical Students," by Mr. R. R. Bennett, pharmacist to University College Hospital. Dr. Stoddart has added two chapters dealing with the study of the subconscious by psycho-analytic methods, and has revised the work throughout as required by the progress of research in the field of psychiatry. Dr. Emery's book is the fourth edition and has been revised throughout. Mr. Bennett's manual has also been thoroughly revised for its second edition. The same firm is associated with a new edition (the sixth) of Dr. H. Lewis Jones's "Medical Electricity." This will contain several new illustrations and will be brought thoroughly up to date. A new book on Ionisation is in preparation by the same author and will be issued at an early date. Mention may be made of new editions just issued of three well-known books: "The Diseases of Women," by Dr. A. H. N. Lewers (with 13 coloured plates new in this the seventh edition); "The

Elements of Practical Medicine," by Dr. A. H. Carter, of Birmingham (tenth edition); and the fifteenth of "The Extra Pharmacopœia," by Dr. W. Martindale and Dr. W. W. Westcott. This edition is considerably enlarged, and the matter arranged in two volumes, for convenienece of reference.

A MEDICAL COURT OF HONOUR IN SPAIN.—Some months ago a Barcelona doctor published a book which gave offence to his brother practitioners, who met together in the capacity of a medical "college" and decided that the publication of the book constituted a case of "infamous conduct in a professional respect" (*immoralidad profezional*), and sentenced him to be publicly reprimanded. The culprit, however, had no intention of submitting quietly to this indignity, and appealed to the civil court of the province, which revoked the sentence and gave judgment in favour of the accused. It was then the turn of the medical "college" to uphold its position as equivalent to a court of honour, and therefore independent of the provincial court of law, so an appeal was lodged before the supreme court. This august tribunal promptly decided in favour of the appellant "college," which was declared to possess the power of controlling its own professional members. *La Crónica Medica*, reporting this case, states that it is entirely ignorant of the circumstances under which the medical "college" gave its sentence, and is glad that it is thus perfectly free to express its satisfaction at the recognition by the supreme court of the power of the "college" to act as a professional court of honour in dealing with its own members independently of the interference of courts of law.

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, AUGUST 1ST.

Sanatorium Benefit.

Mr. ASTOR asked the President of the Local Government Board (1) how many of the medical men holding senior appointments in small-pox, fever, and other hospitals, approved for the purposes of sanatorium benefit, came up to the special standard laid down by the Local Government Board in their Memorandum of May 14th, and repeated in their Memorandum of July 6th; (2) how many medical men in charge of small-pox, fever, and other hospitals approved by the Local Government Board for the purposes of sanatorium benefit, and where it is proposed to treat early cases of consumption, have held appointments or been trained in special institutions for the treatment of tuberculosis; and (3) whether it is proposed that the beds available for the purposes of sanatorium benefit in fever and other hospitals shall be reserved chiefly for advanced cases of tuberculosis.—Mr. BURNS replied: I am advised that the beds available at isolation hospitals will, in many instances, be used not only for advanced cases, but also for cases requiring short periods of training and treatment, and for cases under observation. As regards the medical men who are now in charge of existing institutions, I cannot say what are their exact special qualifications, but they all possess general knowledge of the methods of treatment of tuberculosis, and the Board have given only provisional approval for a period of six months to these institutions.

Mr. W. REDMOND asked the Financial Secretary to the Treasury whether he could say what would be the position under the National Insurance Act of the sanatorium established by voluntary effort in county Clare; would the promoters of this institution be assisted by the funds of the insurance scheme for sanatoria; and would any credit be allowed for the money already spent on the sanatorium.—Mr. MASTERMAN answered: With regard to the first part of the question, if the sanatorium referred to is approved by the Local Government Board for Ireland it will be competent for Insurance Committees to make arrangements with the managers of the sanatorium for the treatment therein of insured persons suffering from tuberculosis, for which Insurance Committees will make payment. The last two parts of the question are within the province of the Local Government Board for Ireland, who are primarily responsible for the distribution of the capital grant available under Section 16 of the Finance Act, 1911, and Section 64 (1) of the National Insurance Act.

Medical Men and the Insurance Act.

Sir J. D. REES asked whether the Government accepted the fact that the medical profession, as represented by the British Medical Association, would not work the National Insurance Act on the terms offered, and if so, what steps they proposed to take to provide those benefits for which compulsory contributions were levied.—Mr. MASTERMAN answered: The answer to the first part of the question is in the negative; no terms have yet been offered by the Insurance Committees. The second part of the question does not therefore arise.

FRIDAY, AUGUST 2ND.

Sanatorium Benefit.

Sir JOHN LONSDALE asked the Chief Secretary for Ireland under which section of the National Insurance Act a grant for the erection of sanatoria had been made to the Women's National Health Association; and if he would give the reference to any section of the Act which empowered the Local Government Board to deal with private persons or associations in regard to the erection or provision of sanatoria or which prescribed regulations or conditions under which money might be paid to such persons.—Mr. BIRRELL replied: I would refer the honourable Member to Section 64 (1) of the National Insurance Act, 1911. Save as regards the consent of the Treasury, no conditions are attached to the exercise of the discretion of the Local Government Board in distributing the grant in aid of sanatoria under that section.

Certificates of Successful Vaccination.

Mr. RAMSAY MACDONALD asked the President of the Local Government Board the total number registered as successfully vaccinated and the proportion to the births in the year 1910.—Mr. BURNS answered: The total number of certificates of successful vaccination received by vaccination officers during 1910 was 531,567. The proportion of such certificates to the births registered during the year 1910 is 59·3 per cent. The corresponding figures for 1911 are 491,260 and 55·7 per cent.

MONDAY, AUGUST 5TH.

Cough due to Mouldy Sago.

Mr. ALBERT SMITH asked the Secretary of State for the Home Department whether his attention had been called to a new form of disease affecting weavers at one or two mills in Colne and Burnley; and whether he would cause minute inquiries to be made with a view to preventing similar outbreaks.—Mr. MCKENNA answered: I have received a report from the factory inspector on this subject. It appears that some few weeks ago certain weavers in a Burnley factory were attacked by an unusual cough which affected their breathing. The shed in question is a dry one, ventilated by six exhaust fans, and the general conditions are good. In order to investigate the matter the firm at once called in experts, who expressed the opinion that the outbreak was due to some mouldy sago in the "size" used in dressing the warps, causing mildew in the sheds. In accordance with their advice the mill was closed and thoroughly disinfected by the local authorities. The sago is now being specially treated to prevent the development of mildew and the warps damped by a solution of carbolic acid, with the result that a decided improvement has already taken place. A very similar outbreak occurred in a factory in Colne in 1911, which was also traced to mildew on the warps. After proper treatment and disinfection of the premises no further trouble occurred.

The Departmental Committee on Tuberculosis.

Mr. JOHN O'CONNOR asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that the Departmental Committee on Tuberculosis recommended that the schemes to be organised by county councils should be so framed as to secure the coöperation of the sanitary authorities, paragraph 35, that special regard should be given to securing the coöperation of the working practitioners in the working of the scheme, paragraph 38, and assumed that the formulation of a county scheme would rest with the county medical officer of health, paragraph 38; was he aware that there were no such officers of health in Ireland; could he say whether the county medical committee might be regarded as an equivalent to such officer; was he aware that the Local Government Board for Ireland had issued to the county councils of Ireland a scheme or schemes ignoring those recommendations and intimating that no money would be provided out of the insurance fund for any other schemes than their own; and could he say whether the claim of a county to a share in the tuberculosis grant was dependent upon its adopting the scheme of the Local Government Board.—Mr. BIRRELL answered: The facts generally are as stated in the first portion of the question, but it may be observed that paragraphs 35 to 38 of the report of the Departmental Committee relate to England and Wales and not to Ireland, and that the committee clearly recognised that the recommendations referred to in the question either would not be applicable to Ireland or would require considerable modification before being applied, having regard to the special circumstances of this country and to the absence of county medical officers of health. Copies of the report were furnished by the Local Government Board to all county authorities, and the services of the Board's medical inspectors were placed at the disposal of the councils and have been generally used. The honourable Member is under a misapprehension in regard to the two last paragraphs of his question. The Local Government Board are following the general lines suggested by the Departmental Committee, and have not formulated any scheme of their own for acceptance by the county councils. The Board are prepared to make contributions from the sanatorium grant for any county scheme which makes adequate provision for the treatment of tuberculosis.

Alleged Overcrowding of a Sanatorium.

Sir JOHN LONSDALE asked the Chief Secretary to the Lord Lieutenant of Ireland whether his attention had been directed to the fact that the medical officer at Dundalk had refused to recommend to the board of guardians that a patient suffering from tuberculosis be sent to the Peamount Sanatorium under the provisions of the National Insurance Act, because under present arrangements it was proposed to crowd 80 patients into a space sufficient only for 20; and what steps he proposed to take to prevent such overcrowding.—Mr. BIRRELL answered: The buildings in course of construction at Peamount were carefully examined last week by one of the Local Government Board's inspectors. His report shows that the statement made in the question is absolutely without foundation. All the arrangements at Peamount have been planned and are being carried out in accordance with the most up-to-date and approved methods of sanatorium treatment.

Four Sanatoriums Approved in Ireland.

Mr. DEVLIN asked the Chancellor of the Exchequer whether he could state what institutions had so far been approved by the responsible authorities in Ireland for the reception of persons suffering from tuberculosis and entitled to treatment therein under the provisions of the National Insurance Act.—Mr. BIRRELL, in a written reply, said: The following institutions have been approved by the Local Government Board for Ireland: Sanatorium at Heatherside, established by the Cork Joint Hospital Board; Sanatorium at Crooksling, established by the Dublin Joint Hospital Board; the Royal National Hospital for Consumptives at Newcastle, county Wicklow; and the Forster Green Sanatorium at Newtownbreda, county Down.

TUESDAY, AUGUST 6TH.

Sanatorium Benefit Limited by Funds Available.

Mr. RUPERT GWYNNE asked the Secretary to the Treasury whether he would state what was the position of an Insurance Committee

which, acting under its statutory obligation in providing sanatorium benefit, exceeded the sums at its disposal; and would the committee be personally liable for the excess of expenditure, or would there be a reduction of sanatorium benefit or a levy on all insured persons in the area after the next valuation.—Mr. MASTERMAN answered: It will be the business of the Insurance Committees so to arrange their expenditure as to keep within the limits of the funds which they will have available. The alternatives referred to in the question will not therefore arise.

Benefits of the Deposit Contributor.

Mr. RUPERT GWYNNE asked the Secretary to the Treasury whether he could yet state what benefits an employed person over 65 years of age on July 15th last, who was a deposit contributor, would be entitled to under the National Insurance Act; and whether he would state which Insurance Committees had determined what these benefits were to be.—Mr. MASTERMAN replied: As the honourable Member is aware, the benefits to which a person over 65 years on July 15th last who becomes a deposit contributor becomes entitled are to be such as may be determined by the Insurance Committee. So far as I am aware, no Insurance Committees have as yet come to any decision on this point, but the Commissioners propose to issue a circular letter making some suggestions in regard to these cases.

Immediate Administration of Sanatorium Benefit.

Mr. CASSEL asked the Secretary to the Treasury whether any insured person in England had yet received sanatorium benefit, and, if so, could he state approximately how many persons have received such benefit.—Mr. MASTERMAN said, in reply: Arrangements have been made by a number of Insurance Committees for the immediate administration of sanatorium benefit, and I have no doubt that some cases have already been dealt with, but I am not in a position to give any estimate of the approximate number.

Statistics of Approved Societies.

Mr. WORTHINGTON-EVANS asked the Secretary to the Treasury to state approximately how many of the 10,500,000 members of approved societies under the National Insurance Act were members of approved societies being friendly societies existing on May 4th, 1911, or the State sections thereof, or members of approved societies formed by trade unions, or members of approved societies formed by industrial insurance companies respectively.—Mr. MASTERMAN answered: The approximate members are respectively 5,700,000, 1,000,000, and 3,500,000, making a total of about 10,200,000, not including members of new societies.

Suggested Abolition of Sanatorium Benefit.

Mr. CASSEL asked the Chancellor of the Exchequer whether, in view of the fact that it had been decided to make sanatorium treatment available for all persons whether insured or not, and the injustice of making insured persons pay for benefits which uninsured persons also received, he would consider the advisability of doing away with sanatorium benefit under the National Insurance Act, 1911, and substituting other benefits, such as paying sickness benefit from the first day of illness, sanatorium benefit being made available under a national scheme for all persons alike.—Mr. MASTERMAN replied: The honourable and learned Member states the case rather more broadly than the facts warrant. The matter depends on the conditions of administration of the grant which the county councils have not yet submitted. In the absence as yet of any definite proposals on this point, I am not in a position to give an answer to the question.

WEDNESDAY, AUGUST 7TH.

Choice of Doctor under the National Insurance Act.

Captain CLAY asked the Chancellor of the Exchequer whether an insured person would be able to choose the doctor he wished to be attended by, or whether, in order to obtain medical treatment, he would be compelled to be attended by a doctor who agreed to serve under the National Insurance Act whether he had confidence in that doctor or not.—Mr. MASTERMAN answered: Section 15 of the Act provides for free choice of doctor by the insured person from a panel composed of all the doctors in any district who wish to practise under the Act. An insured person under Section 15 (3) may be allowed to make his own arrangements for medical attendance and to receive a contribution from the Insurance Committee towards the cost of medical attendance.

Voluntary Insurers under the Act.

Mr. GOLDSMITH asked the Secretary to the Treasury whether he would state the number of persons who had become voluntary insurers under the National Insurance Act.—Mr. MASTERMAN replied: The number of voluntary contributors cannot be ascertained until the contribution cards are returned at the end of the current quarter.

BOOKS, ETC., RECEIVED.

AMERICAN PEDIATRIC SOCIETY (Secretary: Samuel S. Adams, M.D., 1, Dupont Circle, Washington).

Transactions of the American Pediatric Society. Twenty-third Session. Held at the Lake Mohonk Mountain House, Lake Mohonk, N.Y., May 31 to June 2, 1911. Edited by Linnæus Edford La Fétra, M.D. Volume XXIII. Price not stated.

AMERICAN UROLOGICAL ASSOCIATION. (Printed for the Association at the Riverdale Press, Brookline, Mass. Secretary of the Association: N. A. Fowler, Washington.)

Transactions of the American Urological Association. Tenth Annual Meeting at Chicago, Illinois, September 26th and 27th, 1911. Edited by Charles Greene Cumston, M.D. Price not stated.

ARNOLD, EDWARD, London.

The Treatment of Diseases of the Skin. By W. Knowsley Sibley, M.A., M.D., B.C. Camb., M.R.C.P. Lond., M.R.C.S. Eng., Physician to St. John's Hospital for Diseases of the Skin, London. Price 5s. net.

Military Hygiene and Sanitation. By Colonel Charles H. Melville, M.B. Edin., D.P.H., Royal Army Medical Corps; late Sanitary Officer, Army Headquarters, India. Price 12s. 6d. net.

BRAUMÜLLER, WILHELM, Wien und Leipzig.

Vorlesungen über Klinische Haematologie. Von Dr. Wilhelm Türk, AO. Professor für Innere Medizin an der Universität, K.K. Primararzt und Vorstand der II. Medizinischen Abteilung am Kaiser-Franz-Josef-Spitale in Wien. Zweiter Teil, Zweite Hälfte: Klinik der Anaemien-Erythrozytosen und Erythraemie (Die Polyzythaemien). Price K.36, or M.30.

CORNISH BROTHERS, Birmingham.

Insomnia: Its Causes and Treatment. By Sir James Sawyer, of London, Doctor of Medicine of the University, Fellow of the Royal College of Physicians, lately Lumleian Lecturer. Second edition, with many revisions and additions. Price 2s. 6d. net.

FISCHER, GUSTAV, Jena.

Handbuch der pathogenen Mikroorganismen. Herausgegeben von Dr. W. Kolle, Bern, und Dr. A. von Wassermann, Berlin. Zweite vermehrte Auflage. Zehnte Lieferung (Bd. II., Bogen 1-10). Price M.5.

FORBES AND COMPANY, 443, S. Dearborn-street, Chicago.

Confidences. Talks with a Young Girl Concerning Herself. By Edith B. Lowry, M.D. Price 50 cents net.

False Modesty that Protects Vice by Ignorance. By E. B. Lowry, M.D. Price 50 cents.

Truths. Talks with a Boy Concerning Himself. By E. B. Lowry, M.D. Price 50 cents net.

Herself. Talks with Women Concerning Themselves. By E. B. Lowry, M.D. Price $1.00 net.

VIGOT FRÈRES, 23, Place de l'Ecole de Médecine, Paris.

Le Bain Turco-Romain, ses Applications Hygiéniques et Thérapeutiques. Étude Médico-Historique. Par le Docteur Oscar Jennings, de la Faculté de Médecine de Paris, Fellow of the Royal Society of Medicine de Londres. Préface du Docteur J. Lucas-Championnière, Membre de l'Institut, Membre de l'Académie de Médecine. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANDERSON, C. V., M.R.C.S., L.R.C.P., has been appointed House Surgeon to Block 8 at St. Thomas's Hospital.

BRANDON, G. N., M.R.C.S., L.R.C.P., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

BRYAN-BROWN, D. S., B.A. Cantab., M.R.C.S., L.R.C.P., has been appointed Ophthalmic House Surgeon to St. Thomas's Hospital.

BUDD, C. H., M.A., B.M., B.Ch. Oxon., M.R.C.S., L.R.C.P., has been appointed Clinical Assistant to the Children's Medical Department at St. Thomas's Hospital.

CHAVASSE, A. R., M.A., M.B., B.Ch. Oxon., M.R.C.S., L.R.C.P., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

DAW, S. W., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Surgical Tutor to Leeds University and Surgical Registrar to the Leeds General Infirmary.

DIXON, GODFREY BROOKES, M.R.C.S, L.R.C.P. Lond., L.S.A., has been appointed Principal Sanatorium and Tuberculosis Officer to the City of Birmingham.

DONALDSON, ROBERT, M.B., Ch.B. Edin., F.R.C.S. Edin., D.P.H., has been appointed Pathologist and Bacteriologist to the Royal Berkshire Hospital.

DOWNS, G. E., M.B., B.Ch. Oxon., has been appointed Obstetric House Physician at St. Thomas's Hospital.

FRY, H. J. B., B A., M.B., B.Ch. B.Sc. Oxon., M.R.C.S., L.R.C.P., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

GREEN, REGINALD, M.D., B.S., D.P.H. Durh., has been appointed Medical Officer of Health for the Sanitary Area of the Stroud (Gloucestershire) Urban and Rural Districts and the Nailsworth Urban District.

HUMPHRYS, F. J., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

JOHNSTON, H., M.B., Ch.B. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Newtyle District of the county of Forfar.

LEVERTON-SPRY, EDWARD, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the St. Keverne District by the Helston (Cornwall) Board of Guardians.

LOCK, N. P., M.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Resident House Surgeon at St. Thomas's Hospital.

MACPHAIL, ALEXANDER, M.B., C.M. Glasg., has been appointed Lecturer on Anatomy to St. Bartholomew's Hospital.

MARSDEN, W. G., B.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

MITCHINER, P. H., M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed Resident House Surgeon at St. Thomas's Hospital.

OAKDEN, W. M., B.A. Cantab., M.R.C.S., L.R.C.P., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

PHILP, C. H. G., B.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Casualty Assistant at St. Thomas's Hospital.

PRETSELL, T., M.B., C.M. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Scallaway District of the county of Shetland.

RAYNER, E., B.A. Cantab., M.R.C.S., L.R.C.P., has been appointed Resident House Surgeon at St. Thomas's Hospital.

RIXON, C. H. L., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

ROSS, W. D., B.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

ROUQUETTE, S. H., B.A. Cantab., M.R.C.S., L.R.C.P., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

RUSSELL, W. A., B.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

SAUNDERS, E. G., M.R.C.S., L.R.C.P., has been appointed Clinical Assistant to the Throat and Skin Departments at St. Thomas's Hospital.

SHARP, ALICE CAMERON, M.B., Ch.B. Edin., has been appointed Assistant Resident Medical Officer at the Plymouth Workhouse Infirmary.

STEWART, PURVES, M.D., C.M. Edin., F.R.C.P. Lond., has been appointed Physician to the Westminster Hospital.

TODHUNTER, J. E. A. D., B.A. Cantab., M.R.C.S., L.R.C.P., has been appointed Resident House Physician at St. Thomas's Hospital.

TREHERNE, C. W., M.R.C.S., L.R.C.P., has been appointed Obstetric House Physician at St. Thomas's Hospital.

VERDON, P., B.A., M.R.C.S., L.R.C.P., has been appointed Ophthalmic House Surgeon at St. Thomas's Hospital.

WAGSTAFFE, W. W., M.A., B.M., B.Ch. Oxon., M.R.C.S., L.R.C.P., has been appointed Resident House Surgeon at St. Thomas's Hospital.

WHITEHEAD, N. T., M.R.C.S., L.R.C.P., has been appointed Casualty Assistant at St. Thomas's Hospital.

WIGMORE, J. B. A., B.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Casualty Officer and Resident Anæsthetist at St. Thomas's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ASHTON-UNDER-LYNE DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, apartments, and washing.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—Second House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BARNSTAPLE, NORTH DEVON INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

BARROW-IN-FURNESS, BOROUGH OF.—Assistant Medical Officer of Health and Assistant School Medical Officer. Salary £250 per annum.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

BIRMINGHAM, CITY OF.—Assistant Medical Officer of Health. Salary £250 per annum.

BLACKBURN UNION.—Resident Medical Officer, unmarried. Salary £150 per annum, with apartments, rations, washing, and attendance.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—Two House Surgeons for six months. Salary £80 per annum, with board, lodging, and laundry.

BURNLEY, VICTORIA HOSPITAL.—Second House Surgeon for six months. Salary at rate of £80 per annum, with residence, board, and washing.

BURSLEM, HAYWOOD HOSPITAL.—Resident Medical Officer (female). Salary £100 per annum, with board, residence, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Clinical Assistant in the Out-patient Department.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £90 per annum, with rooms, board, washing, and attendance.

DEVON, COUNTY OF.—Assistant School Medical Officer. Salary £250 per annum.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

HASTINGS, EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary at rate of £70 per annum, with residence, board, and washing.

HULL ROYAL INFIRMARY.—Assistant House Surgeon. Salary at rate of £80 per annum for six months, or £90 per annum for twelve months, with board and lodging.

KENSINGTON AND FULHAM GENERAL HOSPITAL, Earl's Court, London, S.W.—Resident Medical Officer. Salary at rate of £75 per annum, with board and laundry.

LANCASTER, ROYAL LANCASTER INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, attendance, and washing.

LEICESTERSHIRE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £250 per annum, with travelling allowance.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LIVERPOOL HOSPITAL FOR CONSUMPTION SANATORIUM, Kingswood, Delamere Forest.—Resident Medical Officer. Salary £400 per annum, with house.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons for six months. Salary £60 per annum, with board and residence, in each case.

MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board and residence.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £175 per annum, with quarters, attendance, &c.

MANCHESTER, ANCOATS HOSPITAL.—Honorary Surgeon.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Resident Medical Officer for In-patient Department, Bowdon, Cheshire. Salary £100 per annum, with board, apartments, washing, &c. Also Assistant Medical Officer for Crossley Sanatorium, Delamere Forest, Cheshire. Salary £100 per annum, with board, apartments, and laundry.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—Senior House Surgeon. Also Junior House Surgeon. Salary £120 and £100 per annum respectively, with apartments and board.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with residence, board, and washing.

NATAL, GREY'S HOSPITAL, Pietermaritzburg.—Junior House Surgeon. Salary £200, after six months £250, with free quarters, board, &c.

NEWCASTLE-UPON-TYNE HOSPITAL FOR SICK CHILDREN.—Senior Medical Officer. Salary £100 per annum, with board and £30 for lodging. Also Junior Medical Officer. Salary £80 per annum, with board, lodging, and laundry.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Resident Medical Officer. Salary £200 per annum, with board and residence.

NORFOLK EDUCATION COMMITTEE.—Assistant Medical Officer. Salary £250 per annum and travelling expenses.

NOTTINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried. Also Assistant. Salary of former £180 and of latter £160 per annum, with apartments, attendance, light, and fuel.

NOTTINGHAM GENERAL HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, residence, and washing.

PERTH DISTRICT ASYLUM, Murthly.—Assistant Physician. Salary £120 per annum, with board, laundry, and attendance.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant Surgeon.

PORTSMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Medical Officer in Charge of Electrical Department. Salary £100 per annum.

RAMSGATE GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon, unmarried. Salary £100 per annum, with board, residence, and laundry.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen appointments.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon, unmarried. Salary £100 per annum.

ST. BARTHOLOMEW'S HOSPITAL.—Medical Officer in Charge of the X Ray Department. Also Medical Officer in Charge of Electrical Department. Also Orthopædic Surgeon.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £80 per annum, with residence, board, and allowance for laundry.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £65 and £60 per annum respectively, with board, lodging, and washing. Also Two Honorary Assistant Surgeons.

SHEFFIELD ROYAL INFIRMARY.—Junior Resident Medical Officer. Salary £70 per annum.

SHEFFIELD UNIVERSITY.—Professor of Pathology.

SHREWSBURY, SALOP INFIRMARY (THE COUNTY HOSPITAL).—House Surgeon. Salary £150 per annum, with board, washing, and residence.

SMETHWICK, COUNTY BOROUGH OF, EDUCATION COMMITTEE.—School Medical Officer. Salary £250 per annum.

SOMERSET COUNTY COUNCIL.—Tuberculosis Medical Officer. Salary £500 per annum.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months. Salary £70 per annum, with residence, board, and washing.

STAFFORD, STAFFORDSHIRE COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £160 per annum, with apartments, board, and washing.

STOCKPORT, COUNTY BOROUGH OF.—School Medical Officer. Salary £250 per annum, increasing to £300.

STOCKPORT INFIRMARY.—Two Junior House Surgeons. Salary £80 per annum, with board, washing, and residence.

TIVERTON HOSPITAL, Devonshire.—House Surgeon and Dispenser. Salary £80 per annum and all found.

WARNEFORD GENERAL HOSPITAL, Leamington Spa.—House Physician. Salary £85 per annum, with board, residence, and laundry.

WEST BERKS UNITED DISTRICTS.—Medical Officer of Health. Salary £530 per annum, with an allowance of £330 per annum for travelling, office, and other expenses.

WINDSOR, KING EDWARD VII. HOSPITAL.—Second House Surgeon. Salary £75 per annum, with residence, board, laundry, and attendance.

WORCESTER COUNTY AND CITY ASYLUM, Powick.—Junior Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, washing, and attendance.

YORK COUNTY HOSPITAL.—House Physician for six months. Salary at rate of £100 per annum, with board, residence, &c.

YORKSHIRE, WEST RIDING.—Tuberculosis Officer. Salary £500 per annum.

Births, Marriages, and Deaths.

MARRIAGES.

KAY—KIDSTON.—On July 31st, at St. Mary Boltons, South Kensington, Charles Wallace Kay, L.R.C.P. & S. Edin., L.R.F.P. & S. Glasg., to Hamilton Marjorie Bruce Wallace, only daughter of the Rev. John Wallace Kidston.

MARSHALL—AINSLIE.—On July 31st, at St. Peter's Church, Peebles, Legh Richmond Herbert Peter Marshall, M.D., to Frances Marion, second daughter of Mr. C. A. Ainslie, J.P., Swinton Bank, Peebles.

DEATHS.

BENTHALL.—On August 3rd, suddenly, at Staplake, Starcross, Devon, Winfred Benthall, M.B., aged 58 years.

GARDNER.—On August 1st, at The Cottage, Brockenhurst, suddenly, T. Fred. Gardner, M.D., F.R.C.P., of The Moyne, Boscombe Spa-road, Bournemouth.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

IMPROVED HEALTH CONDITIONS IN ROME.

Mr. C. C. Morgan, British Consul, writes in his annual report to the Foreign Office:—"The sanitary progress of this district is very markedly borne out by the following returns of deaths, giving comparative figures at certain dates:—

	Rate of mortality per 1000 inhabitants.	
	Annual rate in the years 1871–75.	Annual rate in the years 1906–10.
Rome	33·7	18·9
Perugia	27·0	19·3
Macerata	27·0	19·9
Ascoli	27·2	19·7

There are very few large continental cities that seem to be able to vie with the Italian capital in point of health, and great credit is due to the local authorities for their successful efforts in reducing the old high rate of mortality to the present figure. On examining the last official death statistics available relating to the main causes of death in Rome, I gather some interesting data which are given hereunder. The highest ratio of mortality is now due to enteric and intestinal complaints and the lowest is due to malaria—an inversion of the former state of public health. It is evident that the former scourge of the district has been successfully grappled with and stamped out. Causes of death in Rome (per 100,000 inhabitants): Enteric and intestinal complaints, 239·2; pneumonia, 208·1; consumption, 177·2; heart disease, 152·9; cancer, 65·3; small-pox, chicken-pox, and scarlet fever, 55·3; typhoid, 30·3; diphtheria and whooping-cough, 15·1; malaria, 10·3."

DISINFECTION IN CATTLE PLAGUE.

To the Editor of THE LANCET.

SIR,—Recent legislation has shown how greatly the present Government believes in the virtues of soft soap—I mean the kind that Mr. Veller called "butter." But one would have thought that the permanent officials of the Board of Agriculture knew by now that there were more useful disinfectants than soft soap and carbolic acid.

The country has suffered great financial loss by the outbreak of foot-and-mouth disease, and the subsequent restrictions placed on the movement and export of cattle, as all county practitioners know; yet I see from Parliamentary reports that the Board of Agriculture are "taking all precautions" to prevent the spread of the plague by the use of soft soap and carbolic acid!

The powerful coal-tar preparations, which have been shown to be so far more effective, have almost entirely superseded carbolic acid, and in a time of national peril and financial loss I should have thought that a Government department would seek the advice of bacteriologists as to the best means of destroying the germs.

I have seen the tests of modern disinfectants which showed 40 times the efficiency of carbolic acid (pure phenol) against B. pestis, 22½ times by the Rideal-Walker method against B. typhosus; and surely at a crisis like the present, when so deadly and difficult an infection has occurred in England as to practically upset the whole of the cattle and meat trade, it behoves a department whose principal business is the study of the well-being of such industries to seek the most efficient methods and weapons for fighting the scourge.

Dry rot is said to be caused by a bacillus. I think it must have attacked some of the departments of our Government. Perhaps they should apply soft soap and disinfectant nearer home.

I am, Sir, yours faithfully,

July 18th, 1912. COUNTRYMAN.

NECESSITOUS LADIES' HOLIDAY FUND.

To the Editor of THE LANCET.

SIR,—You were good enough on previous occasions to allow me space in your valuable paper to appeal for contributions to provide holidays for necessitous ladies, and through the generosity of your readers I was enabled to send many away to the sea or country side.

I venture again to trespass on your kindness, and to ask for help to give holidays to hospital nurses, governesses, secretaries, musicians, actresses, typists, and ladies engaged in other professions, who, without the chance of earning money in the summer months, are often left behind in London exposed to the sufferings attendant on poverty. That rich men and women would but hold out the hand of kindness to their less fortunate sisters! More especially I beg for those too proud to beg for themselves, for the sick and overworked.

All contributions will be thankfully received and distributed among the deserving cases if sent to me at 48, Upper Berkeley-street, London, W.

I am, Sir, yours faithfully,

August 1st, 1912. CONSTANCE BEERBOHM.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for August and September:—

May to October (London, Earl's Court).—Shakespeare's England.
Aug. 5th–10th (Oxford).—Second International Congress of Entomology.
" 6th–10th (Düsseldorf).—Third International Medical Congress on Industrial Accidents.
" 6th–27th (Balkans, Turkey, Greece).—Ninth Annual Congress of the Association Internationale de Perfectionnement Scientifique (A.P.M.).
7th–10th (Glasgow University).—Thirty-second Annual Meeting of the British Dental Association.
" 8th–30th (Central Europe).—Medical Study Tour ("A.P.M."), starting at Besançon.
" 10th–14th (Edmonton and Calgary, Alberta).—Annual Meeting, Canadian Medical Association.
" 11th–18th (Cracow).—Eighth Esperanto Congress.
" 12th–17th (Harvard University, Cambridge, Mass.).—Ninth International Otological Congress.
" 24th–Sept. 9th (Toronto).—Canadian National Exhibition.
Sept. 1st–14th (France).—Voyage d'Etudes Médicales.
" 2nd–7th (Wrexham).—Welsh National Eisteddfod.
" 3rd–6th (Breslau).—Thirty-seventh Meeting of the German Association for Care of Public Health.
" 4th (Washington, D.C.) and Sept. 6th–13th (New York). Eighth International Congress of Applied Chemistry.
" 4th–11th (Dundee).—British Association.
" 8th and 9th (Zürich).—Congress of Psychiatry and Psycho therapy.
" 8th–11th (London, Royal Agricultural Hall).—Dairy Show.
" 9th (probable opening date) (Geneva).—International Congress of Anthropology and Prehistoric Archeology.
" 9th–10th (San Sebastian).—Third Spanish Congress of Tuberculosis.
" 10th–12th (Berlin).—Sixth International Congress of Obstetric and Gynæcology.
" 15th–21st (Münster).—Eighty-fourth Meeting of the German Association of Scientists and Medical Practitioners.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Mr. Addison: Demonstration of Minor Operations. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Morton: Therapeutic Applications of Carbon Dioxide Snow.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations on the Throat, Nose, and Ear. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Mr. B. Harman: When is Operation the Right Treatment for Squint?

THURSDAY.—10 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn; Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstrations of Cases in Wards. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. T. Gray: Acute Infections of the Peritoneum in Children.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Wall: Diseases of the Pleura.

TUESDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Grünbaum: Diseases giving rise to Morbid Renal Excretion.

WEDNESDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Hutchison: Diseases of Children.

THURSDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. Thompson: Diseases of the Nervous System.

FRIDAY.—2.15 P.M., Demonstration in Clinical Medicine:—Dr. L. Smith: Diseases of the Heart.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's 1.30 P.M.), Children, Gt. Ormond-street (9 A.M.) St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2. P.M.).

TUESDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (14th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2 30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (15th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M.), Aural, (2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (17th).—Royal Free (9 A.M), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospital operations are performed daily.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 7th, 1912.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 1	29·53	W.	...	118	68	54	53	59	Cloudy
" 2	29·77	N.	...	116	68	51	53	56	Fine
" 3	29·95	S.E.	0·17	107	67	50	52	56	Fine
" 4	29·63	S.	0·40	102	70	54	55	57	Cloudy
" 5	29·76	S.W.	0·01	107	64	57	57	59	Cloudy
" 6	29·41	S.W.	0·22	102	61	54	56	59	Cloudy
" 7	29·43	S.W.	0·11	111	69	54	56	58	Cloudy

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

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Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1912, which was completed with the issue of June 29th, were given in THE LANCET of July 6th.

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